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Implications of Travel Behavior Determinants on Transportation Planning in the COVID-19 Pandemic

Hector Lim Jr. [1] *Ma. Bernadeth Lim* [2] *and Joy Mae Anabo* [3]

College of Engineering and Agro-Industrial Technology, University of the Philippines Los Baños, Laguna, Philippines

College of Public Affairs and Development, University of the Philippines Los Baños, Laguna, Philippines

ABSTRACT

Transportation planning is vital in the current scenario of rapidly growing populations, travel changes, and demand. With the emergence of the COVID-19 pandemic, socio-economic conditions in society are exerting significant strain on transportation infrastructure. These conditions might affect not only the transport demand and infrastructure but also the travel behavior of people. This paper aims to analyze their travel behavior and predict their response to changes in the travel environment, using recent literature on modeling travel patterns in a pandemic. It also analyzes the implications of significant factors to transport planning. Understanding and anticipating travel behavior and its impact on transportation planning in the pandemic condition is crucial in transportation modeling, making decisions, and formulating policies based on travel demands.

Keywords: Transportation, Transportation Planning, Travel behavior, Pandemic

INTRODUCTION

Transportation is an essential component of urban development. Providing access and mobility, enables urban areas to function efficiently. System transportation planning and infrastructure development are the most critical factors, especially in urban areas with solid and rapid urbanization. Transportation demand in urban areas is related to choosing where people live connected to work, shopping, entertainment, school, and other important activities (Sekhar, 2014).

The recent COVID 19 outbreak, on the other hand, has had a significant effect on people, work, and economic development. Travel is considered an important factor in transmitting contagious diseases. Cliff and Haggett (2004) investigated three situations: how measles emerged in Fiji, maladaptive habits after the measles outbreak in Iceland, the cholera outbreak in the United States, and infectious disease transmission rates. Air travel was also a substantial contributor to the 2003 SARS outbreak (Findlater and Bogoch, 2018). The limiting entrance points (such as airports and border crossings) to lower the risk of viral infection is a typical approach to prevent the spread of illnesses (Sun et al., 2020). Individuals, communities, states, and countries must communicate, share information, and coordinate regularly. Human mobility and patterns of interaction significantly contribute to the transmission of the virus, causing travel to be restricted during this epidemic. Depending on local authorities, socio-economic conditions, and ethnic backgrounds, different countries have also proposed or put in place various regulations and safeguards to stabilize and flatten the outbreak. These regulations include school closures, remote or online education, telecommuting, store and restaurant closures, public meetings, social and meeting restrictions, national and city blockades, curfew enforcement. Travel restrictions, including the suspension of public transportation and taxi services, imposition of social distance, border and airport closures were also implemented. These regulations can have an impact on people's health and well-being and on travel movement (De Vos, 2020).

Many researchers report less travel than grocery shopping (Abdullah et al., 2020). They discovered an early shift to panic buying and dry matter in consumer behavior, which affected retail logistics. In other countries, it was reported that the number and distance of trips have decreased significantly. About 60% reduction of the average daily travel distance in Switzerland and 90% of travel by public transport (Molloy et al., 2020). In the Netherlands, the number of trips dropped by 55%, while the distance traveled was reduced by 68% (de Haas et al., 2020). Travels to amusement parks, shopping centers, and malls were found to significantly decrease due to the closures of stores and businesses (Zhang et al. 2021). Most respondents in the study of Anwari et al., (2021) show a declining trend of leisure trips and travels were made only for work reasons. There was a significant decline in the average travel related to work and school from five to two days a week in Indonesia. According to Irawan et al. (2021),

shopping trips have reduced from thrice to once a week. It has similar results in India, where most respondents have reduced travel for recreation and shifted to mandatory travel such as work (Aaditya and Rahul, 2021). Additionally, Mayo et al. (2021) in the Philippines have found that low-wage or blue-collar employees have high travel needs for economic considerations. The continued isolation has led to more trips for these purposes after the restrictions were loosen. Moreover, there were more frequent trips for leisure and recreation.

Based on the travel needs of people and the shift of travel demands during this pandemic, it is crucial to understand and analyze their travel behaviors. It can be useful in transportation planning and policymaking. Government authorities and transport planners can use this information in implementing traffic policies to decongest route networks, optimize travel time, and better plan transport services, either public or private. This review paper analyzes the implications of travel pattern determinants to transportation planning during this pandemic. It also discusses the modeling approach in transportation planning and its limitations from existing works of literature. This review paper is outlined in this manner: Section 2 discusses transportation planning and the transport models utilized to analyze different activity patterns of individuals, Section 3 provides factors that influence travel behavior from recent literature and its implications to transportation planning, and finally, Section 4 encapsulates the essential findings and suggests study directions for the future.

Transportation Planning and Modelling Approach

The transportation planning process delved into connecting transportation goals to physical use, preservation of culture, socio-economic, ecological, and standard of living in the area covered by the arrangement. It examines current transportation operations and forecasts future transportation needs using data. Transportation planning, according to Garber and Hoel (2015), is a systematic approach for preparing physical facilities and travel mode services to meet transportation needs. It expands into a process of defining future policies, priorities, resources, and innovations to anticipate future transportation needs for people and goods. It entails assessing and selecting roadway or transportation infrastructure to serve current, and future land uses. The construction of a new shopping complex or conference center, for example, will necessitate the expansion of transportation services. In addition, new residential development and industrial parks will increase traffic, necessitating the construction or extension of highways and public transportation. Transportation planning requires more than just identifying highway and transit projects. It is necessary to establish plans for implementing, regulating, controlling, and investing in the transportation infrastructure to meet the long-term goals of the community (McNally, 2008).

This process uses travel demand and supply systems approaches. Demand and supply are essential concepts in economic theory and being commonly used now in the field of transportation economics. These demand and supply concepts in the field of economics is applicable to travel demand and supply of transportation infrastructure. However, transportation need is a derived demand, not a requisite in and of itself. It means that individuals travel not only to go outside but to engage in various activities in various places. Under a set of established land-use, socio-economic, and environmental factors, the number of people or vehicles projected to travel on a specific portion of a transportation system per unit time is known as travel demand. Its forecasts are being used to determine the future vehicle volume or modified transportation system alternatives (McNally, 2008). Travel demand forecasting is used in the transportation planning process to estimate the quantity of traffic in the future.

Forecasting and modeling travel demand is still a helpful strategy for analyzing transportation plans, projects, and policies. The results of modeling can help individuals in the decision-making process, in infrastructure and building design, as well as developing transportation policy (Subbarao and Rao, 2020). The purpose of transportation models is to be as precise as feasible in representing reality. These models can investigate and solve a wide range of transportation issues, including traffic congestion, transportation-related greenhouse gas emissions, economic advantages, and road accidents. Traffic models are commonly used to estimate under uncertainty, support any managerial decisions, build infrastructure, and advise policies on changes in travel patterns (Daisy et al., 2017 & Hafezi et al., 2018). Among the numerous types of travel demand models, the trip-based transport planning models and activity-based transport planning models are widely known. Both can produce relatively accurate travel demand projections from the modeled scenario. Based on their properties, the models can anticipate interim transport consideration (activity intent, time, method of transportation, location, and others) along with protracted transportation plans.
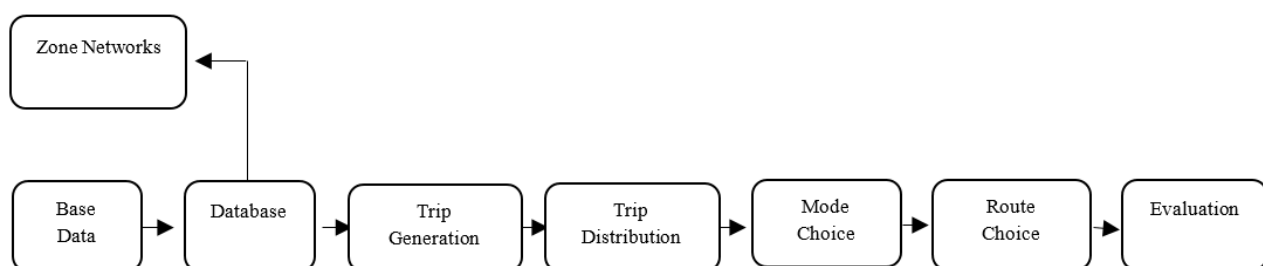

Figure 1. Four-Step Transportation Model
Source: Modified from Modi et al. (2011)

Traditional Four-Step Model

Trip generation, trip distribution, mode choice, and route assignment are the four main steps in the traditional four-step model (see Figure 1). The first three steps of the model are intended for forecasting travel demand. Route choice, the fourth stage, balances travel demand and supply by loading tours onto one or even more transport networks.

The first phase of the classical first-generation aggregate demand models is trip generation. Trip generation is the analysis and process modeling phase that usually begins with the first step. It is a broad term used in transit planning to refer to the total count of the trip-ends in a specific area. There are two types of trip generation: production and attraction. The number of trips that finish in zone-i is called production (origin). The number of trips that conclude in zone-j is called an attraction (destination) (Sekhar, 2014). The trip generation process presupposes that land activities (e.g., jobs and houses) in each zone produce and attract trips (trip-ends). A production is a trip-end that is developed in an area, whereas an attraction is a trip-end that is drawn to an area. The second stage of travel demand modeling is deciding on a destination from the starting point. When plotted in an origin-destination (O-D) matrix, the trip distribution is the calculated amount of trip ends produced in one zone divided by the total number of the trip-ends drawn to another area (Modi et al., 2011).

The primary notion in modeling trip distribution is that time spent traveling is perceived negatively, and the longer the trip, the more demanding it is. Most trips generated in each zone get attracted to nearby or surrounding zones; some get attracted to moderately distant zones; and very few to highly remote zones. Mode choice is the third stage in travel demand modeling. It is the decision to choose what transport mode to take from origin to destination. These modes of transportation are classified as public transportation riders and personal/private vehicle mode (Sekhar, 2014). One of the most prominent modeling techniques in transportation planning is the modal split/mode choice model. It is because public transportation plays such an essential role in policymaking. An increasing growth rates and income and a growing preference for transport vehicle have all emerged from globalized industrialization. Traffic congestion and environmental difficulties are caused by the increasing volume of various transport modes in the city, resulting in impeded vehicular traffic such as congestion and mishaps, which result in substantial economic damage annually. Shifting passengers of private modes to mass public transportation seems to be a strategy, however, considering the convenience aspect of public transit facilities, it is difficult to achieve. Researchers have done investigations to analyze better the relation between travel modes and the numerous elements that influence it to solve such a declining travel demand. According to current research studies, various socio-economic, cultural, and external factors influence commuter mode choice. Mode choice behavior can be explained using income, car ownership, household characteristics, dwelling location, and other parameters. All supply factors include vehicle duration, waiting period, travel delay, transport costs, transfer time, etc. However, in this situation, where there are travel mobility constraints, more research into other factors determining this behavior is recommended. The fourth and last stage of the four-step modeling process is route assignment. Commuters will choose the route that takes the least amount of time and covers the least amount of distance regardless of the amount of traffic on the road.

The trip-based demand model considers daily travel pattern to be an aggregation of independent trips and uses trips as the unit of analysis. Because of its autonomous behavior, the model ignores the interdependence of several aspects of special trips, such as duration, destination, and transport mode choice. Furthermore, in all stages of the trip-based method, trip schedules and the subsequent interrelationship in the characteristics of multiple trips were ignored. The lack of a behavioral base is another fundamental flaw in the four-step concept. It neglects the behavioral fact that people consider their travel decisions ahead of time by considering the entire trip chain rather than each trip separately. As a result, the model cannot account for the impact of outside and stay-home activities substitutions on overall travel patterns.

Activity-Based Travel Demand Model

There is a growing amount of literature on activity-based transportation during the previous two decades. Individual and household decisions about activities and travel are better understood using activity-based modeling. The main goal for developing this model for transportation demand analysis is to obtain a better knowledge of individual travel patterns and to construct a model that is sensitive to growing policy challenges like congestion pricing and land use. Compared to trip-based aggregation and disaggregation modeling techniques, the activity-based approach provides a more fundamental and complete foundation for depicting realistic representations of travel behavior. The physical involvement of people in anything that serves their needs or those of their family is defined as an activity. The analysis from the model considers travel as a demand resulting from a movement that was spatially allocated (Subbarao and Rao, 2020).

The fundamental notion is that activities are both in spatial and temporal. Hagerstrand (1970) defined the time-space idea and established the first activity-based model. Individuals live in a temporal-spatial prism, where their involvement in activities is governed by three restrictions. The first type of constraint is capability, which emphasizes physical requirements and available resources which might either enable or limit involvement of people in a particular activity. Second, connection constraints highlight the spatial and spectral requirements for a person who interacts with others to complete an activity. Finally, there are institutional constraints that prevent a person from participating in certain activities at specific time and place. Their choice to engage in each activity at a particular place and time, according to the theory, is the outcome of different situations and settings. (Hafezi et al., 2018).

Activity-based transport planning models can

effectively simulate individual or stratified travel behavior, resulting in more accurate forecasts of future travel patterns. Because activity engagement is a complex behavior, this inherently raises the difficulty level in the analysis. Traditional travel survey data do not provide enough information on activities. Such data limitations may account for the relatively little concerted efforts to explain travel behavior over time. Modeling travel behavior becomes more complex because it does not only model time allocation into activity categories but also model activity engagement incidents for travel demand analysis. Activity-based transport planning has received much attention in recent years and has achieved substantial advances. A wide range of modeling approaches has been created to simulate multiple aspects of activity-based models, such as type of activity, series of activity, frequency and sequence of activity location, activity duration, and transportation mode for the subsequent trip. A cohesive theoretical framework for an activity-based transport planning model has been developed, which was influenced by previous studies conducted by eminent researchers (see Figure 2). The framework includes a population synthesizer and a daily activity pattern model. As the base year input, the model uses an aggregate level of data. A population synthesizer converts aggregate level socio-demographic data into disaggregate data. The population oscillator output is loaded in the daily activity pattern model. The method captures if the transactions are performed at home or outside the house, as well as the interactions between household members. Models for forecasting mode of transport, daily schedule, destination, secondary trips, and so on are also included at the scheduling level. Individual records are generated by this model, which

can then be aggregated into an OD matrix contingent on the daily schedule and mode. The network assignment acquires the aggregate flow data after assigning it to the network and generates the service level information and other specifications.

Relevant information from the actual activity-travel study specific to the survey area must validate the above framework because its basis are numerous operational activity-based models. Individual activity and travel behavior, especially in developing countries, necessitate changes to the proposed framework.

These transportation models are arguably critical in analyzing the changing travel patterns or behaviors of people given their demographic profile, travel characteristics, and the current pandemic crisis setting. Model parameters, policy actions, and pandemic protocols and measures might influence travel patterns.

Travel Behavior Determinants and their Implications on Transport Planning

Multiple research works have been undertaken to determine how each factor influences people and household travel behavior. Most of travel behavior research was done for emergency evacuation (Lim et al., 2021; Ramakrishnan et al., 2020; Mostafizi et al., 2019; Nagarajan et al., 2021; Do, X., 2019; Damera et al., 2019, etc.). Lim et al. (2021) identified significant factors in evacuation behavior from the Taal eruption in the Philippines using a discrete choice model. Damera et al. (2019), on the other hand, developed a nested logit model that considers the factors in making
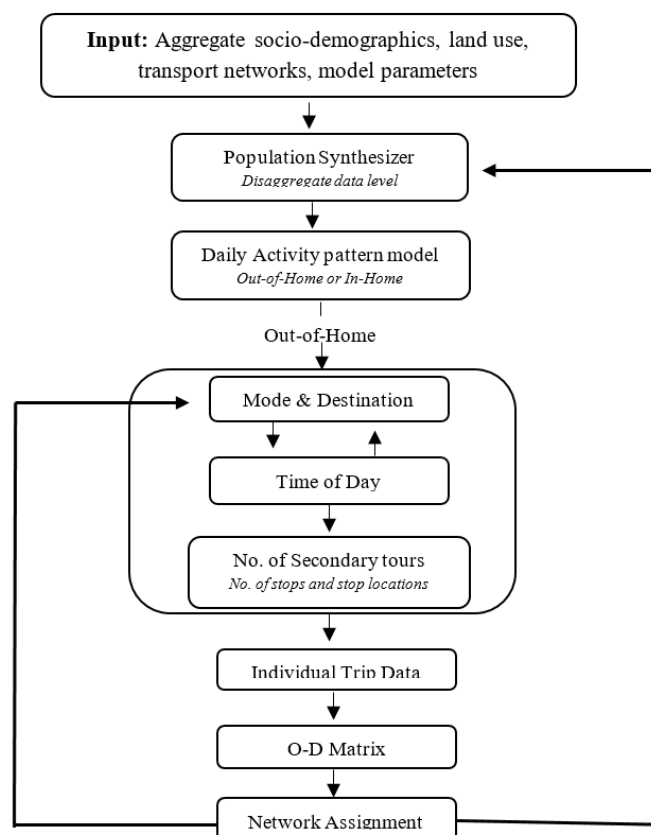
Figure 2. Activity-Based Travel Demand Modelling Framework
Source: Modified from Sekhar (2014)

decisions in the ability to forecast the comparative order of the location of evacuation and shelter type. Furthermore, Nagarajan et al. (2021) investigated evacuee behaviors and the factors that influence their decision to evacuate.

The emphasis of these extensive studies is on emergency evacuation. Several studies on travel patterns respond to the most recent virus outbreak. De Vos (2020) emphasized how the global epidemic has impacted travel and how alternative modes of transportation, such as pedestrian and biking, are self-sustaining and beneficial to one's health. A significant decline in public transportation use has also been observed in the US cities of Washington and Chicago (Brough et al., 2020; Shamshiripour et al., 2020). In other countries, the trip volume and total distance have decreased significantly (Molloy et al., 2020; de Haas et al., 2020). The closure of shops and business centers has resulted in a significant decrease in visits to theme parks and shopping complexes in Hong Kong (Zhang et al., 2021). Even though several research studies have been conducted to explain behavioral trip changes in the ongoing global epidemic, they have often been undertaken in industrialized nations. Only a few findings in emerging countries were made to identify shifts in travel patterns.

According to the findings from the study of Anwari et al. (2021), a substantial majority of their study participants in Bangladesh reduced on leisure activity travel, but only a tiny percentage scale back on work-related travel. In Indonesia, they found a significant decrease in trips, with regular trips lowered from five days to twice per week in career and educational trips (Anwari et al., 2021). Grocery trips have also been reduced from three times per week to once a week. In India, Aaditya and Rahul (2021) revealed similar results, with most of their study participants are eager to lessen their travel for leisure and visits but not for job travel.

The different findings from various studies investigating the travel pattern alterations in the pandemic are summarized in Table 1. All of these publications are in the setting of the COVID-19 outbreak. According to recent studies, these factors can be categorized into three groups namely: personal attributes, travel attributes, and risk perception. Other studies refer to socio-demographic variables as personal attributes (Arreeras et al., 2020, Tan and Ma, 2021, Bhaduri et al., 2020). The general framework for this paper shows that each category of travel behavior determinant has specific factors affecting transportation

Table 1. Travel behavior determinants from past studies under the COVID-19 pandemic

Author/s	Country & Travel Behavior	Significant Factors
Abdullah et al. (2021)	Pakistan, Mode Choice	Distance, infection concern, social distance, hand sanitizer's availability, and cleanliness
Yang et al. (2021)	China, Travel demand	Employment status/type, income
Tan and Ma (2021)	China, Mode Choice	Employment, commuting mode before the pandemic, travel time, risk perception, confidence in the mode of transport
Ku et al. (2021)	South Korea, Travel usage rate	Traffic, sharing rate, employment type (work-from-home)
Scheffer et al. (2021)	Germany, Mode Choice	Travel time, trip purpose, vehicle ownership, travel distance, destination
Bhaduri et al. (2020)	India, Mode Choice	Trip purpose, trip length, age, income, and working status
Harbering and Schluter (2020)	Mexico, Mode Choice	Gender, income, education, the ratio of children in the household, employment, travel cost, travel distance, travel time, car ownership, spatial structure, and transport service
Arreeras et al. (2020)	Thailand, Mode Choice	Gender, age, employment, income, number of transits, travel cost, travel time
Mayo and Taboada (2020)	Philippines, Mode Choice	Safety, availability of mode, cost, comfort, concern for the environment
Devika et al. (2020)	India, Mode Choice	Psychological factors (attitude, behavioral perception, intention)
Keyes and Brown (2018)	England, Mode Choice	Income, attitude to active modes, car use

planning. A trip generation or the decision of an individual to go out and their modal choice are influenced by the combination of personal attributes, travel attributes, and risk perception. Meanwhile, trip distribution is controlled by travel attributes and risk perception. Lastly, route choice is mainly determined by travel attributes. The following sections provide a more detailed analysis of how these determinants affect every stage of transportation planning.

Implications of Travel Behavior Determinants on Trip Generation

Personal attributes considerably affect travel decision and behavior during this pandemic. Specific determinants identified from the existing works of literature include age, gender, marital status, income, education, employment, and household size (Figure 4). In their qualitative study, Yang et al. (2021) investigated how travel patterns changed before and after the pandemic. Travel demand was initially reduced significantly, according to the findings. Second, declining travel reduces activity engagement, impacting both personal health and well-being. The type of employment and income influence travel demand. In terms of income level, Jiao and Azimian (2021) revealed in their study the factors on travel patterns in the next period of the pandemic in the US. The findings show that individuals with an annual income level of lower than 100,000 USD have a lower likelihood of making trips. It is because they can afford other shopping methods such as online shopping, given their easy access to internet service compared to those with an income level of less than 50,000. However, Shin et al., (2022) found out that the highest income category shows a positive effect on the likelihood to go out. Moreover, Ku et al. (2021) assessed the travel pattern in Seoul in the pandemic setting; their findings indicated that the transportation use changed because of COVID-19. They discovered that the rate of travel usage has decreased because a large proportion of the population is now accustomed to remote working

or virtual classes as they see it as convenient for them. As the duration spent at work from home increases, the count of regular commuting trips also decreases (Hensher et al., 2022). In terms of age, adults aged 35 or older had higher odds of not traveling outside because their shopping behaviors have shifted to online shopping (Jiao and Azimian, 2021). Concerning educational levels, individuals without a graduate degree were more likely to go out and make trips to stores (Schaner and Theys, 2020). The findings of Shin et al. (2022) support this claim where higher educational attainment (e.g., college degree) is negatively significant on the likelihood of travel. However, this contradicts that of (Jiao and Azimian, 2021), where individuals with higher education levels are more likely to hold well-paid jobs and afford to go out and incur travel costs. Regarding gender, males travel more outside than females (Anwari et al., 2021). It was supported by Paul et al. (2021) from his study on the changes in travel behavior in Dhaka City. As for marital status, a married individual had a higher chance of making trips to stores compared to any other marital status (Jiao and Azimian, 2021). Household size was also seen as significant in deciding to travel. Shakibaei et al. (2020) found out that small households have a lower probability of going out in the pandemic as they explained that the assumption is that they have fewer needs. However, this disagrees with the result from the study of Jiao and Azimian (2021) as they indicate a higher likelihood to travel for small households.

Travel characteristics or attributes also revealed to have a considerable influence on travel behavior. As indicated in Figure 4, travel distance and travel purpose influenced trip generation. The purpose of their trip influences their travel time, which affects their travel behavior. Abdullah et al. (2021) explores the effect of the global outbreak on travel behavior in Pakistan. The primary intent of travel in the pandemic shifted from education and work to buying groceries. Travel purpose and distance were observed to impact their travel decision and pattern.
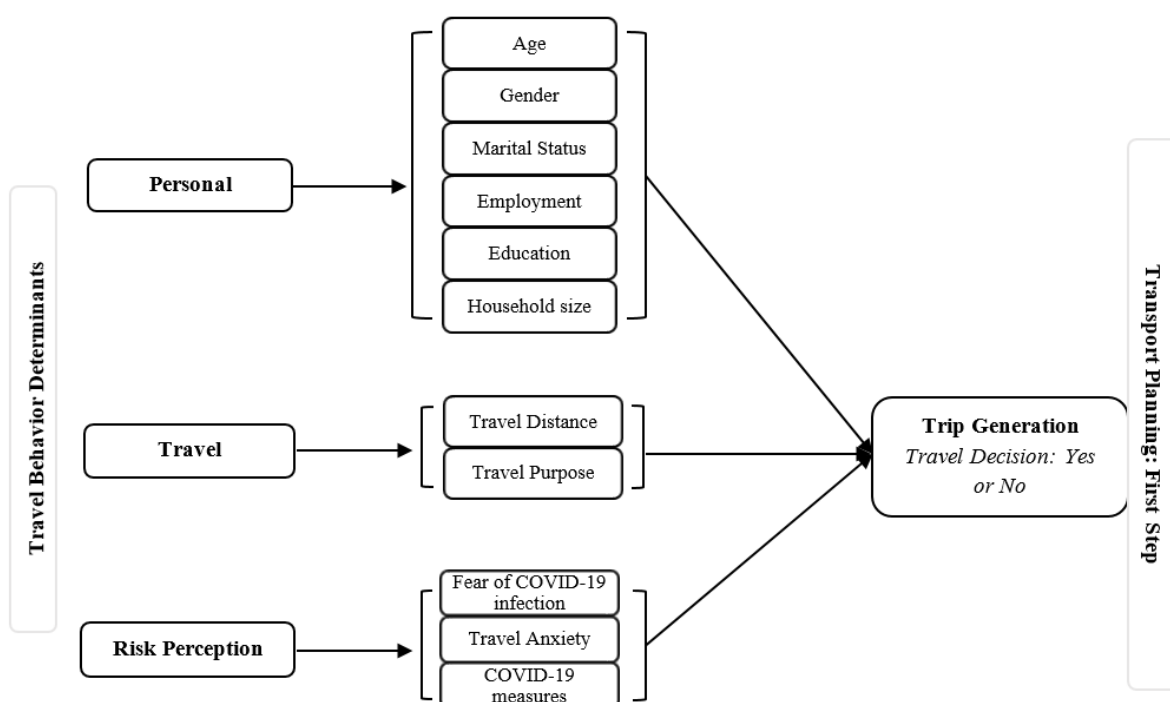

Figure 4. Travel Behavior Determinants on Trip Generation

Abdullah et al. (2020) indicated that people tend to travel when the primary purpose is work or grocery shopping. However, there is a small percentage of respondents who will go out for social or leisure activities. Also, they added that reduced travel distances have a higher likelihood of deciding to go out. A similar finding was obtained by Azimi et al. (2021), where the travel distance has a negative influence on travel decisions.

The last significant variable category is risk perception or behavioral perception. Studies of preventive measures to contain the virus consist of personal preventive measures like hand washing, using hand sanitizer, and wearing a mask, especially in crowded environments (Guner et al., 2020; Girum et al., 2020; Gou et al., 2021), social distancing (Shen et al., 2020; Beck and Hensher, 2021), travel restrictions and lockdowns (Linka et al., 2020; Devi, 2020; Nicola et al., 2020; Sun et al., 2020; Meichtry et al., 2020; Epstein et al., 2007), work from home (Xiao et al., 2021; Okuyan et al., 2021; Macalipis, 2021; Mahajan et al., 2021; Beck et al., 2020; Zafri et al., 2021; Shen et al., 2020), and testing and vaccination status (Moghadas et al., 2020; Chen, 2021; Guner et al., 2020). These measures have a direct effect on the risk perception of people. As these measures are well-implemented and observed, especially in public places and transportation modes, it decreases their risk perception. According to studies, as risk perception increases, they go out less frequently because they are afraid of getting infected, affecting the number of trips generated and distributed. The fear of COVID-19 has resulted in a significant mobility reduction worldwide. A large percentage of people refused to go out because of their fear of getting infected. It has also been reported that people with travel anxiety motivate to make risk-avoidant decisions to minimize the potential dangers of the pandemic (Riad et al., 2020). It leads people to decide to stay at home to reduce exposure to the virus. It complements findings from Beck and Hensher (2020) that their decision to travel and go out has been significantly influenced by their fear about the threat of COVID-19 to the community or the participant.

However, based on the existing literature, more research into the travel decision-making mechanisms of people from various cultural backgrounds is required. Different policy responses may result from differences in behavioral intention caused by structural settings, way of life, and traffic conditions. It is observed mainly in emerging areas where bus services are necessary and difficult to maintain social distance (Chen et al., 2022). Continued estimations incorporating more exclusive variables are required to allow people to predict the changes in travel decisions, and behavior as the virus outbreak continues.

Implications of the Factors of Travel Behavior on Trip Distribution

Studies suggest that travel destination choice is determined by travel attributes and risk perception. This phase of transportation planning forecasts the volume of traffic from the origin zone to the departure point zone, as discussed in the previous section. As a result, trips are plotted in an origin-destination matrix. The specific determinants that shaped trip destinations are depicted in Figure 5. The rate of trip sharing, the purpose of the trip, the distance traveled, and risk perception, specifically COVID-19 fear and anxiety, were all found to have a significant impact on trip distribution.

The assessment on the level of sharing in buses, taxis, railways, which are typical modes of mass transportation, influenced travel decisions, resulting in a lower trip volume (Ku et al., 2021). Travel frequency has also decreased as human mobility has decreased due to the pandemic, affecting the volume of trips generated and the volume of tours to be distributed in each trip (Mayo et al. 2021; Irawan et al. 2021). Longer travel distances may imply more tours in a trip, and thus more trips to be distributed. Poli (2021) discovered in his study of the impacts of the pandemic on trip characteristics that individuals decrease their distance traveled, so they go for destinations closer to their origin. It was supported by Lakatos and Mandoki (2020) in their study of long-distance transportation in Hungary, which revealed that for relatively short distances, 50% of the respondents choose that specific location. This could imply that people are reluctant to travel for an extended period in a pandemic context. It is because there is a high chance of more prolonged exposure to many people during their travel. Furthermore, the purpose of the trip, or why people go out, has a significant effect on the destination. Shaer and Haghshenas (2021) examined the impact of the outbreak on the trips of senior citizens and discovered that travel for work and groceries is more likely to influence the location of their trips.

Furthermore, risk perception and apprehension about COVID-19 have shifted travel destinations of people,
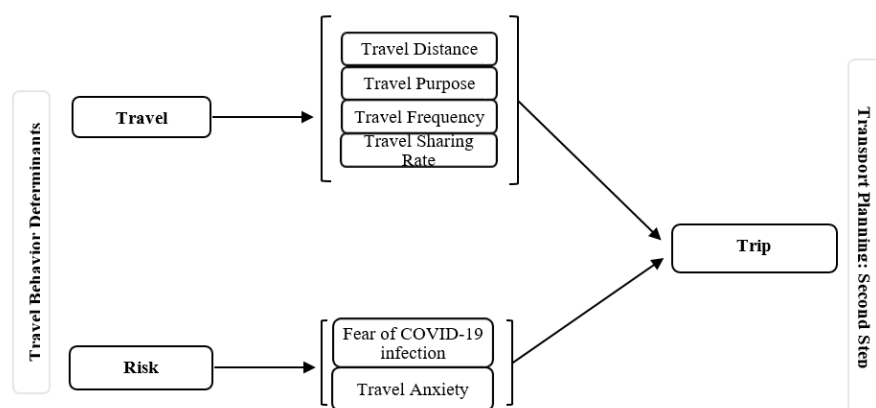

Figure 5. Travel Behavior Determinants on Trip Distribution

with most trips observed to be to workplaces and grocery stores. In the research of Parady et al. (2020) in Japan, they found that level of risk perception was linked to greater reductions in shopping frequency and going out to chain stores and leisure activities. However, Truong and Truong (2021), in their analysis of pandemic travel behavior, suggested that when the loop begins with a decline in the latest reports of cases and deaths from the virus, it will develop a perception in the community that it is safe and secure to go out now because the chance of contracting COVID-19 is relatively low. As a result, residents begin to make short-distance trips, workplaces, vacations, quick visits to relatives and friends, etc.

Implications of Travel Behavior Determinants on Mode Choice

In the modal choice behavior assessment of factors, the combination of personal attributes, travel attributes, and risk perception significantly affects choice of transport mode (Figure 6). Specific factors include age, gender, education, employment, income, car ownership, the ratio of children in the household, travel distance, travel purpose, travel time, travel anxiety, infection concern, and COVID-19 measures.

Arreeras et al. (2020), in their study of mode choices of people under pandemic, revealed that age, gender, and occupation significantly affect transport mode choice decisions in Nakhon Ratchasima. When gender and occupation characteristics are considered, the 35-44 age group is more likely to use private than others. It is supported by Jiao and Azimian (2021), who found that people aged 35 and up are much less inclined to utilize public transport. They also added that in terms of gender, men have a lower likelihood to travel by public transportation. This result is similar to the studies before, such as Shakibaei et al. (2020) and Harbering and Schluter (2020). They revealed that females are more likely than males to take public transportation and walk instead of

driving. The negative coefficients associated with income had a significant impact on mode choice decisions. In addition, low and middle-income households show that they are more inclined to use public transit as they cannot afford to purchase a personal vehicle (Jiao and Azimian, 2021). This finding is similar to another study in which a group with higher incomes (15,000-30,000 baht per month) is more likely to use public transportation than low earners. The capacity of high earners to own a private car is linked to socio-economic factors. If all other factors are considered, income and car use correlate with each other, with greater income linked with a lower probability of deciding to take public transport or active mode rather than a car. (Keyes and Brown, 2018, Arreeras et al., 2020). Tan and Ma (2021) also discovered, using a logit model of the choice behavior of commuters during the pandemic, that occupation is a significant variable in the mode of transportation that they will use when going out. Self-employed and contract workers have a lower likelihood of using rail transit. The study of Harbering and Schluter (2020) in Mexico yielded similar results. If an individual is an employee or contractual worker, there is an additional distinction in mode decisions throughout the week. The employee has a higher probability of commuting by car during the week than by any other mode of transportation. They also discovered that having a car is a significant factor in what mode of transportation individuals choose. Significant heterogeneity and changes in travel mode choices are revealed in India based on respondents' age, income, and employment status (Bhaduri et al., 2020). Furthermore, the education and child ratio were found to be significant. The car is more likely to be used by commuters who are better educated (Ton et al., 2020). It was backed up with the findings of Jiao and Azimian (2021) as they argue that those with higher educational attainment are most probably have a well-paid job and afford a private vehicle. Also, the number of children in the household leads to a positive attachment to the car. They demonstrate that there are more determinants than previously thought in the formation of choice sets. While
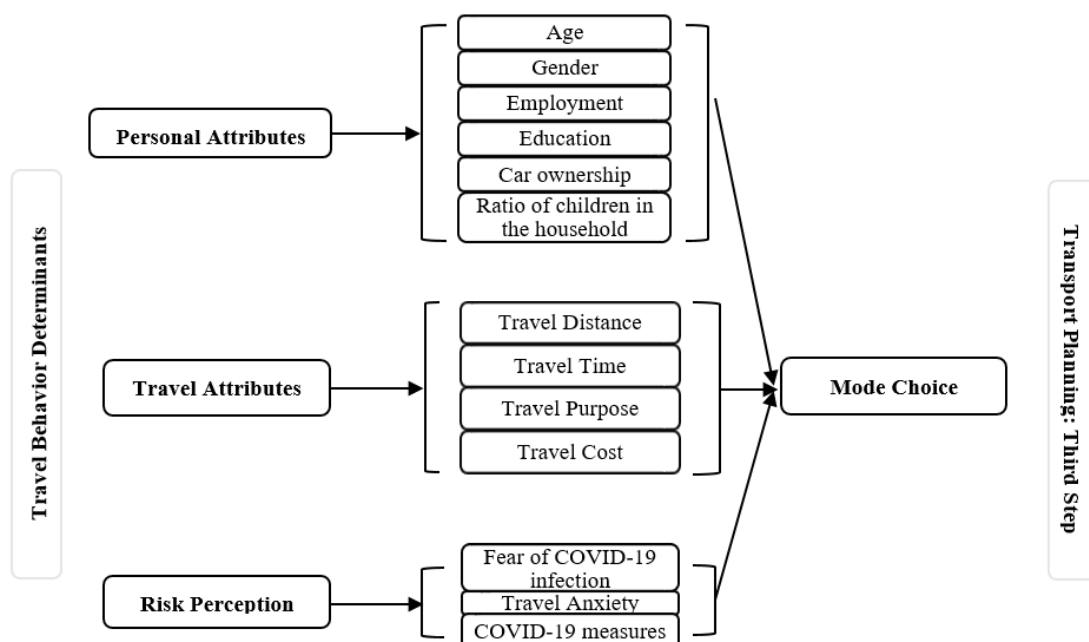

Figure 6. Travel Behavior Determinants on Mode Choice

many research findings identify the choice of transport mode set established on ownership and trip attributes, only a few have tried to include personal features in the availability of mode determination (Ton et al., 2020).

The amount of non-commuting travels taken before and during outbreak has also changed significantly. There was a notable modal switch from motorized to non-motorized transport mode for distances lower than 5km. They switched from mass transit to personal transport if travel distance is longer.

These are backed up by the results of Bhaduri et al. (2020), who discovered that travel purpose and travel duration impacted the shift from shared modes to personal modes. However, it contradicts the findings of Harbering and Schluter (2020) in Mexico. They indicated that as trip distance tends to get longer, the decision to go for cheaper transport modes becomes much more highly probable than driving. In contrast, expensive taxis, bicycles, and walking modes have a lower likelihood of being used than a car. In addition, commuters prefer to drive their car as travel times lengthen (Harbering and Schluter, 2020). This complements the findings from Nakhon Ratchasima, where the travel time variable influenced mode choice. It demonstrates a high likelihood of selecting the private modes. This finding implies that public transportation may take a longer travel time than private transportation. As a result, when travel time is limited, people prefer private transportation over public transportation (Arreeras et al., 2020). However, this contradicts the findings from Bautista-Hernandez (2021), where the bike, walk, and other-NMT all negatively correlated with travel time. As a result, they claim that trips taken in these modes take less time than trips taken in a car. It might be because of the spatial environment of the community. Other research has discovered that related costs have an impact on mode decisions. Commuters are more likely to choose a mode of travel other than a private vehicle as travel costs increase. Arreeras et al. (2020) affirmed that travel expenses factors are connected with a coefficient value that represents the likelihood of deciding private car when traveling on a limited budget. One probable explanation is that frequent use of public transportation results in higher costs, notably for public transportation operations, whereas private cars can make a direct trip from a starting point to the destination.

On the other hand, risk perception can also affect the transportation mode choices of commuters. The study of Mayo and Taboada (2020) identified the factors that have significant impacts on travel behavior in Metro Cebu, Philippines. Their key findings show that safety takes precedence over accessibility, transport cost, convenience, and environmental awareness, regardless of other socio-demographic factors. When all factors are considered, privately owned for-hire vehicles outrank various mass transit systems, despite rapidly deteriorating traffic situations and rising travel costs. It is interesting to note how each group ranks factors second after safety. It could imply that the safety of the mode of transportation boosts their confidence while lowering their risk perception. This is confirmed in the study of Abdullah et al. (2021). The study results indicate that during the pandemic, respondents prioritize their fear for infection, observance of social distancing protocols, hand sanitizer use, availability, and cleanliness, among others, as it increases their perception of the risk of infection. In addition, there is a lower probability of using public transport mode when commuters perceive that their chance to be infected is higher on this type of mode. It reflects the confidence of passengers in mass transit like buses, taxis, and other ride-sharing services (Tan and Ma 2021). A similar finding of Jiao and Azimian (2021) backed this up where commuters are less likely to travel with public transport services when they develop travel anxiety.

From the existing recent works of literatures on the transport mode choice, researchers suggest that the subsequent studies should elaborate on the actual behavior and choices of people using revealed preference data.

Implications of the Factors of Travel Behavior on Route Choice

On the other hand, route choice analysis showed that travel attributes significantly influence their route choices. As shown in Figure 7, these specific factors consist of travel destination, travel distance, travel time, and travel cost.
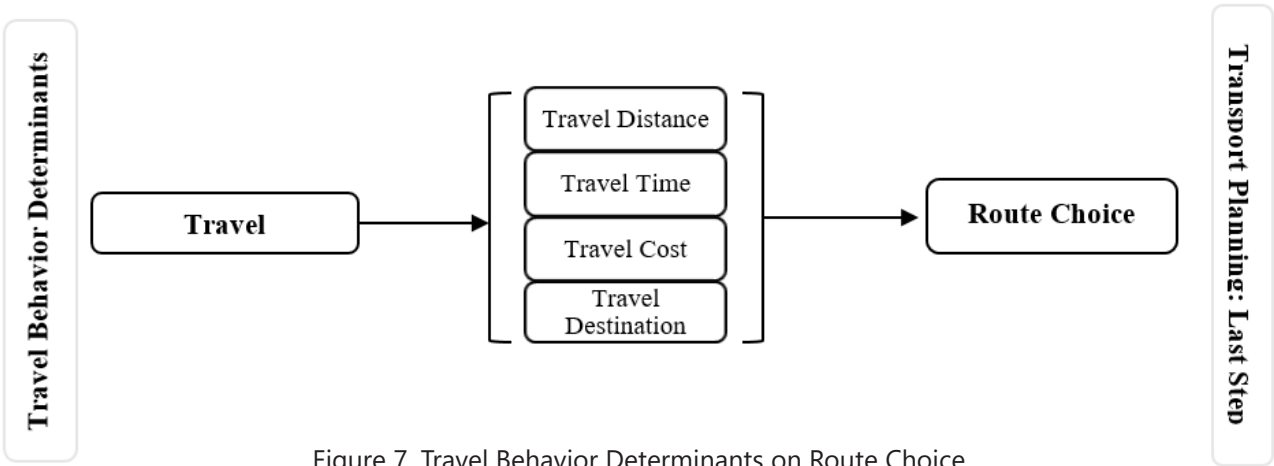

Figure 7. Travel Behavior Determinants on Route Choice

Chen et al. (2020), in their study of vehicle route planning during a pandemic, found that the trip destination, travel distance, and travel time all imply vehicle route choices. It implies that people who travel a shorter distance will have a relatively short travel time, which results to taking that route. Anwari et al. (2021) corroborated this previous study. Long-distance trips are closely attributed to the road a commuter will consider taking unless a shorter route can be accessed. These findings support those of Shelat et al. (2022), who studied route choice behavior in the Netherlands under pandemic environments. Their decision-making models indicated that respondents choose routes with shorter travel times and lower costs because they sense a lower risk. Marra et al. (2022) give the same results as other studies, indicating that the significant distinction in travel patterns under this outbreak depends on how people consider travel expenses and trip duration. Also, commuters do not have a definite best route for a regular trip, but they frequently take routes that will provide cheaper alternatives. However, they have suggested that this phase of transport planning needs more attention of studies and findings to understand better the factors in choosing their route alternatives.

These existing works of literatures showed us the different significant determinants that influence travel behavior. Personal attributes such as socio-economic and household attributes, travel attributes such as trip purpose, distance, cost, and so on are critical factors in determining their travel behavior. Also, the risk perception and their concern about virus spread can be seen in their decision to travel and the mode of transportation they use. However, recent research findings found that the variables in the choice set of these studies were insufficient. According to the literature, other factors influencing travel behavior should be considered, including a broader range of variables in the choice set specification, such as psychological, social, environmental, and latent factors. Furthermore, because the focus of the study is on the travel pattern changes before and under the pandemic outbreak, replicating the investigation after the pandemic will help determine whether these changes will persist or not. To represent the study area, transit mode should be subdivided into categories; for instance, other transport modes that are accessible in a specific area could have been considered and contributed to mode choice forecasts.

SUMMARY AND RECOMMENDATIONS

During a health crisis, such as an outbreak, there are expected changes in transport or mobility of people. Primarily, this is because of the innate drive to protect individuals from the virus. Preventive measures such as travel bans and other protocols to avoid infection from spreading have been implemented. This pandemic did not only change the intention to travel to a specific place, but it also affects the decision of individuals to travel or not. Changes in travel behavior include lessened travel frequency, transport mode shift, the purpose of traveling, and others.

The paper discovers that travel behavior has changed significantly in a pandemic setting. Alternative transport modes like walking and cycling have been used by commuters as they found it to be sustainable.

The number of people using public transit has declined substantially. The number of trips and distance traveled have also decreased significantly due to the closing of local physical businesses. Adventure Park and shopping center visits have also dropped considerably. Several factors that have an influential impact on these changes in travel behavior were also identified. The findings demonstrated the interdependence of variables such as personal attributes comprised of socio-demographic and household characteristics, trip attributes, and risk perception or concern for virus spread. Furthermore, these travel behavior determinants have specific implications for transportation planning. The paper discussed that a combination of these factors affects the four-step of transport planning model.

Moreover, the national government and local government units can plan ahead of time by forecasting the pattern of travel behavior during these times. Appropriate transportation interventions can be used to prioritize socio-demographic groups that need to travel urgently. Local government officials, for instance, may work with existing industrial businesses, companies, and institutions to identify workforce who need to travel for work, mainly that income is less than the basic wage. The government can then subsidize public buses or other forms of mass transportation to cover worker fares. Also, a transportation schedule can be created to match the work schedules of employees. Furthermore, prolonged home isolation stimulated people to leave from home when restrictions were lifted, leading to higher recreational or entertainment trip frequencies. As a result, the government must impose stricter travel health protocol execution to reduce the virus propagation. It can be enforced by issuing fines to commuters who wear face masks improperly or not at all, as well as public transport operators who exceed the fifty percent passenger capacity limit. During curfew hours, more enforcement officers should be observable in heavily populated areas with high foot traffic. Non-essential travel after curfew hours can be handled similarly.

Future research can examine travel behavior using a broader range of variables in the choice set specification, such as psychological, social, environmental, and latent factors. Furthermore, the focus of the study can be shifted to after the pandemic to determine whether these changes will persist or not. Another interest for further study can explore the travel behavior of people with the combination of stated and revealed preference data.

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GIS-based Mapping of Flashflood Susceptible Areas in Bukang Liwayway, Kibawe, Bukidnon

George R. Puno, Alex S. Olpenda, Rena Christina C. Puno, Rodriga G. Aguinsatan, Laarni F. Lacandula, Ida V. Maghuyop, and Ricardo G. Villar

College of Forestry and Environmental Science
Central Mindanao University, Musuan, Bukidnon, Philippines, 8710

ABSTRACT

This study aimed to generate a GIS-based flashflood hazard susceptibility map using the geographical information system (GIS) and frequency ratio (FR) techniques in one of the geographically isolated and disadvantaged areas (GIDAs) of the country, which is the barangay Bukang Liwayway of Kibawe, Bukidnon. There are 160 sample points conducted for flashflood inventory to calculate FR and the flashflood prediction weights values needed to generate the flashflood susceptibility map. The elevation, slope, aspect, curvature, topographic wetness index, drainage density, LULC, normalized difference vegetation index, and rainfall are the nine controlling factors that are selected. Results show that the areas exposed to flashflood with low, medium, and high-risk levels of susceptibility consist of 89.8, 4.4, and 5.7% of the total land, respectively, with 25 households exposed to high risk. The study determined the possible site for the evacuation center based on the spatial analysis resulting in the overlaying of different thematic map layers based on flashflood susceptibility factors. The study emphasizes the integration of the findings in the localized comprehensive land-use plan to realize the challenge of building a sustainable and hazard-resilient human community in Bukang Liwayway.

Keywords: Flashflood-resilient, frequency ratio, GIDAs, GIS, susceptibility

INTRODUCTION

Climate change-related hazards like floods, landslides, and soil erosion are common in tropical countries like the Philippines. The topographic characteristics in most highlands of the country, like Bukang Liwayway, Kibawe, Bukidnon, typically result in high-intensity rainfall. With the uncontrolled land tilling in steeper hillslopes and other anthropogenic factors, the area is prone to accelerated soil erosion and, to some extent, heightened exposure to landslide and flood hazards. In most cases, these areas are confronted primarily with the problems such as soil erosion and sedimentation, disturbed riparian areas, and low water quality. With the degrading soil and water resources, farmers tend to move into areas with fertile soil in the uplands resulting in land conversion for crop production, which depletes the remaining natural forest resources. Continued degradation of soil, water, and forest resources may negatively affect the income of individual households and the local economy of Bukang Liwayway.

According to the Central Mindanao University Integrated Research Development and Extension (CMU iRDE) Program "Capacitate" Project teams' exploration and needs assessment, Bukang Liwayway is confronted primarily with the issues and concerns relative to income, natural resources, and hazards. Some of these include lack of potable water, low income from corn production, lack of other sources of livelihood, soil and water degradation, and lack of land use/land cover (LULC) maps and hazard maps.

The aim of this research project had focused on generating a GIS-based map of hazards and natural resources like forest vegetation of the study area. The study recognizes the advantage of using the Geographic Information System (GIS) and the need for integrating modern technology and indigenous knowledge into disaster management (Tran et al., 2009). The project mobilizes human and technical resources to strengthen a good partnership between local communities and government institutions like CMU. Generally, the project provides information to local government units to aid in legislating policies and ordinances relative to flood hazard reduction and management. The LGU can use the output of this study to establish linkages with the national and international agencies to support the implementation of programs and projects on disaster risk reduction and mitigation.

METHODOLOGY

Description of the study area

The study area is located in Barangay Bukang Liwayway with a geographical extent of 7⁰ 28' 20" to 7⁰ 30' 23" North and 125⁰ 0' 44" to 125⁰ 2' 17" East (Figure 1). Within the Municipality of Kibawe, Province of Bukidnon, Bukang Liwayway is constituted with seven Puroks and identified as one of the country's geographically isolated and disadvantaged areas (GIDAs). It has an approximate area of 623.23 hectares with 307 households. Bukang Liwayway is bounded by the barangays of Balintawak at the North, Cagawasan and Sampaguita at the East, Sanipon at the South, Mascariñas and Tumaras at the West.
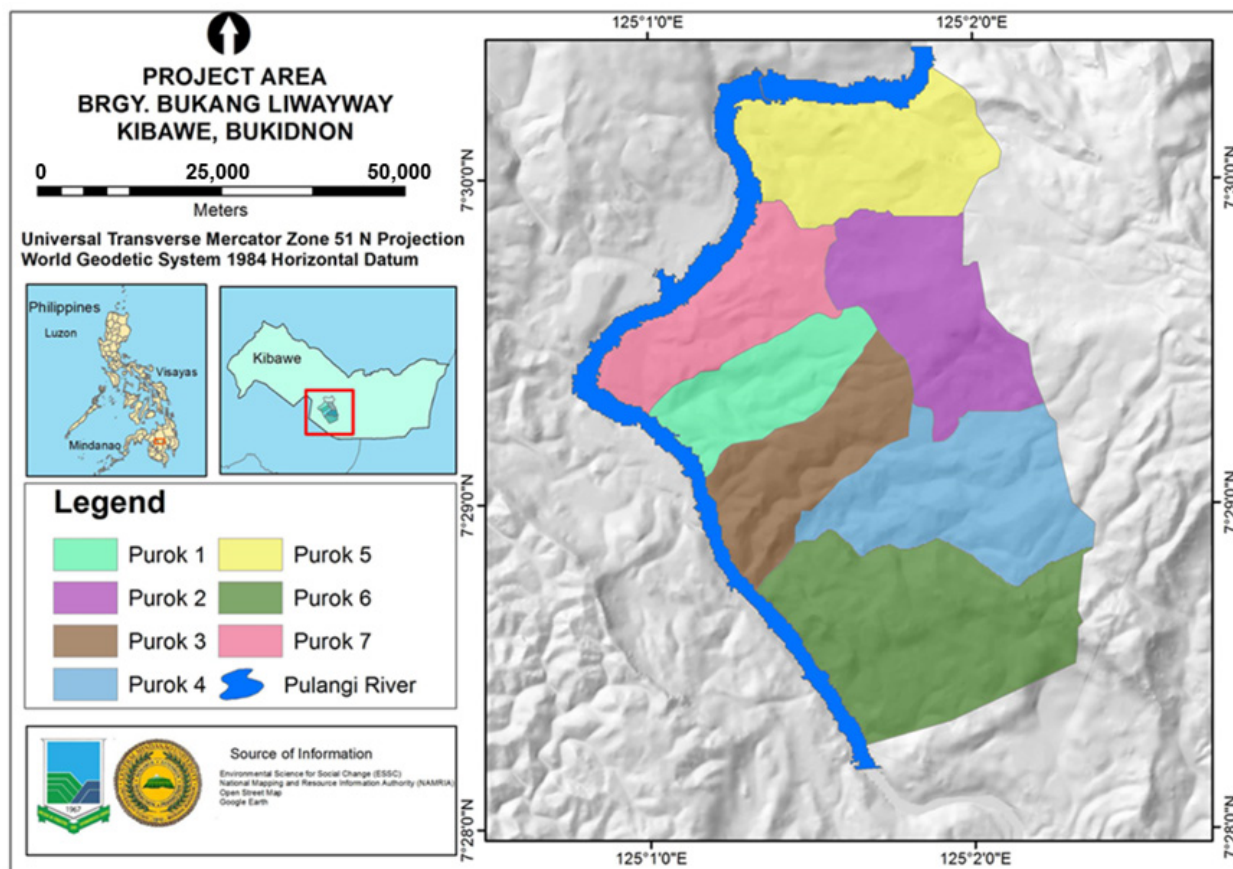
Figure 1. Map of Bukang Liwayway, Kibawe, Bukidnon

The barangays of Balintawak, Tumaras, and Mascariñas is demarcated from barangay Bukang Liwayway as the Pulangi River traverses from the North to South on the western side.

The area's topography is mostly rolling based on the average slope of 31%, with the lowest and the highest elevations of 64 and 407 meters above sea level (masl). The area's climate belongs to type four with no distinct dry season and an annual precipitation average of 2,800 mm. The vegetations are mainly agricultural, with patches of primary and secondary forest.

Data Collection and Processing

Mapping flash flood hazards need four essential input files: climate, slope, soils, and land cover. These input files could either be primary or secondary data. Primary data gathering includes the collection of coordinates using a global positioning system (GPS) from the sample points on the ground with flood incidences and the LULC map of 2021 generated using a Sentinel-2 satellite image.

The 2021 Sentinel-2 satellite image product was downloaded from the internet through the United States Geological Survey (USGS) Earth Explorer. The image was processed using a remote sensing tool to generate a vector map layer for the LULC of the area. The method included the collection of the training samples which were used to perform the maximum likelihood classification algorithm. The next phase consisted of collection validation sample points of different land cover classes on the ground, independent from the training samples based on the image from google earth aerial photos. The process applied the confusion matrix analysis to obtain the producer, user, and overall accuracy values. The producer accuracy refers to the probability that a particular land cover class is classified as such, while the use accuracy refers to the likelihood of the same identity between a pixel and the actual land class in the map (Rwanga and Ndambuki, 2017. LULC classification produces several features where some are irrelevant in the map layout. Thus, the process applied the minimum likelihood unit tool to decongest the map from unnecessary segmented polygons.

The visual observation was conducted to assess the area's environmental conditions and characteristics, including the vegetation around the flooded areas. An inventory of past flashfloods incidence was conducted to generate the database comprising the relationship between the different triggering factors and flood occurrences. In the study, the flood database was created based on the collected coordinates of the 160 flood points using GPS.

The secondary data collected includes the interferometric synthetic aperture radar (IFSAR) from the National Mapping and Resource Information Authority (NAMRIA) to generate Digital Elevation Model (DEM), satellite images obtained from the United States Geological Survey (USGS) earth explorer for the land cover, and the historical rainfall of the Philippine Atmospheric, Geophysical, and Astronomical Services Administration (PAGASA) weather stations. Figure 2 shows the process flow chart of the study following the method employed by Ullah and Zhang (2020).

All flashflood controlling factors were reclassified into an appropriate number of values. This work conducted
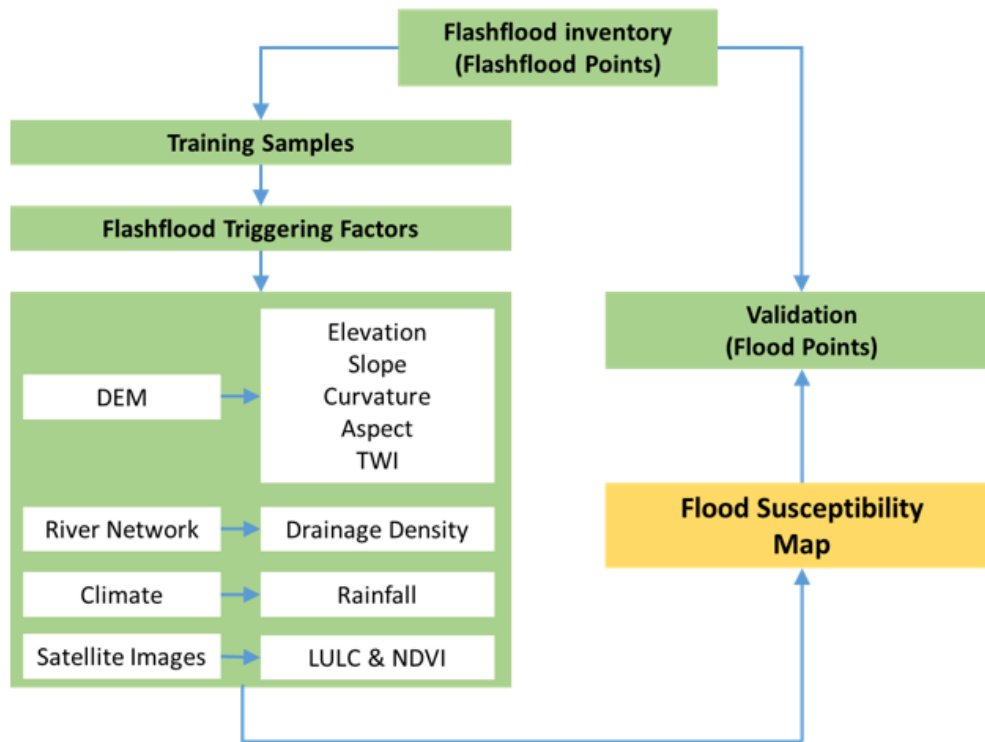
Figure 2. Process flow chart of mapping the flashflood susceptible areas

manual classification with discrete classes for the factors with continuous values. Following the GIS workflows, the generated datasets were converted into raster format with the same geographic projection and resolution. The correlation between flash flood susceptibility controlling factors and flashflood inventory was analyzed by frequency ratio and flashflood relative frequency ratio.

Relative Frequency Ratio in Flashflood Susceptibility Mapping

Any area's flash flood hazard susceptibility can be estimated based on the contribution of causative factors and the relationship between them. With the advent of powerful computers, machine learning methods are widely used. However, these methods require a massive amount of data as training for better accuracy (Acharya and Lee, 2018). Due to the limited data and the corresponding cost constraint, this study used the relative frequency ratio (FR) method of flashfloods susceptibility mapping in different controlling factors within the GIS platform. FR is based on the observed relationship between the spatial distribution and causative factors of flashflood susceptibility such as elevation, slope, aspect, curvature, TWI, drainage density, LULC, NDVI, and rainfall expressed mathematically as:
The FR values were normalized in a range of probability

$$\text{Eq. 1} \qquad FR = \frac{Flood\ points\ in\ factor\ calss / Total\ flashflood\ points}{Factor\ clas\ area / Total\ factor\ class\ area}$$

values (0, 1) a Relative Frequency (RF). The RF for each class were calculated using the following equation:

$$\text{Eq. 2} \qquad RF = \frac{Factor\ class\ FR}{\sum Factor\ classes\ FR}$$

After the normalization, the RF values still have the drawback of considering all conditioning factors equal weight. For the purpose to address the drawback and considering the mutual interrelationship among the

independent variables, prediction rate (PR) was calculated for the rating of every conditioning factor with the training datasets as:

$$\text{Eq. 3} \qquad PR = \frac{RF_{max} - RF_{min}}{(RF_{max} - RF_{min})_{min}}$$

Finally, the flash flood susceptibility index map (FSI) was calculated by the summation of the product of each factor PR and each class of the maximum normalized FR values as shown below:

$$\text{Eq. 4} \qquad FSI = \sum_{i=1}^{n} PR_i(RF_i)$$

Validation was made through visual observation in the area with the residents to confirm the actual occurrence of the flash flood hazards.

Data Analysis and Validation

Descriptive analysis such as total, mean, and percentage was applied to describe the extent of the different controlling factors and the resulting simulated flashflood susceptible areas. Geospatial analysis such as spatial join, intersect, overlay, etc., within the GIS platform was also conducted to determine the results of the combined thematic map layers of interest. Validation was conducted through an actual field survey with the presence of localities to confirm the location of flashflood occurrence. Sample points were collected and used to attest to the validity of the simulated flash flood hazards.

RESULTS AND DISCUSSION

There were nine triggering factors of flashflood hazards included in the study, namely: elevation, slope, aspect, curvature, TWI, drainage density, Land use/Land cover change (LULC), Normalized difference vegetation

index (NDVI), and rainfall. Figure 3 shows the different GIS map layers of the selected triggering factors for flashflood susceptibility mapping of Bukang Liwayway. The topographic features of the barangay in terms of elevation and slope are visualized in Figures 3a and 3b, respectively. Lower elevated areas are mostly planted with different crops, while the higher elevated areas are covered with isolated forest patches and farming crops. Built-ups or residential areas are usually situated at the mid-elevation range of 210 to 260 masl. The elevation class of 113-150 masl constitutes the most extensive (22.63%) of the total area of the barangay (Table 1). The mid-elevation with 12.84% of the total area is of particular interest as flood peaks for a given return period of rainfall events also increase with mean watershed elevation (Dingman, 1981). However, this has yet to be further validated as the study area was delineated as not following the watershed natural boundary.

Accordingly, elevation and slope are the important factors of flashflood occurrence as water always flows from higher locations to low-lying areas. The lowest elevation class (64-112 masl) has the maximum RF value of 0.56, followed by 113-150, 189-230, 151-188, and 231-407 masl with FR values of 0.308, 0.07, 0.06 and 0, respectively. The analysis reveals that flashflood occurrences are mostly in the lower elevation class. Higher elevation classes have the lowest FR value (Table 2). These results agree with previous studies, which found a low probability of flood occurrences at higher elevated regions and a high probability of flooding in lowland areas (Ullah and Zhang, 2020).

The area's slope was classified in accordance to the Bureau of Soil and Water Management (BSWM) slope categories described as flat (0-3%), undulating (3.01-8%), undulating to rolling (8.01-18), rolling (18.01-30%), steep (30.01-50%), and very steep (>50%). Accordingly, the relative slope length factor has also been considered one of the fundamental causes that contribute to flood hazards and can prove the existence of a strong relationship between flooding and flat areas of low elevation (Nguyen et al., 2020; Tehrany et al., 2017). The infiltration process is also partly controlled by the slope gradient. An increasing gradient decreases the infiltration process but increases the surface runoff; as a result, in regions having a sudden descent gradient, an enormous extent of water becomes stagnant and causes flood conditions (Ullah and Zhang, 2020). The average slope of the barangay falls under the slope category of rolling, with an average of 31%. The results show that the two lower slope gradient classes, i.e., less than 3 and 4-8 % have the highest FR value of 0.335 and 0.313, respectively. In contrast, the slope gradients above 50 % show the lowest RF value (Table 2).

Meanwhile, the aspect or exposure of the barangay (Figure 3c) is mostly southwest, covering 43.14% of the area. As reported, southwest orientation exposure has a high tendency to be susceptible to flash floods due to poor vegetation cover and dry ground surface (Avinash and Ashamanjari, 2010). The aspect was selected for this analysis due to its impact on the amount of precipitation and sunlight exposure (Tehrany et al., 2017). Excluding flat, all other classes of this factor exhibited a relationship with flooding, with the strongest found at the southwest. The

barangay is unique from other places in terms of curvature as it has a minimal flat surface. As shown in Figure 3d, the curvature map classifies into three classes: concave upward for negative values, flat for zero values, and convex upward for positive values. The result shows that the highest RF was obtained from the surface with concave curvature, indicating that flashflood usually occurs in these areas.

The topographic wetness index (TWI) map of the site, classified into five different classes (Figure 3e), shows that most of the area (40.56%) has a lower TWI value indicating that only a lesser portion of the area is susceptible to flashflood. The location is usually near the creeks. Around 11.22% of the area with TWI ranging from 6.9 to 18.4 is more susceptible to flooding.

The drainage density of Bukang Liwayway (Figure 3f) was classified into five classes for visualization. The map shows that higher drainage densities are concentrated in the small proportion of the area along the streamlines towards the Pulangi River. High drainage density scattered near the Pulangi River indicates high groundwater occurrence and surface runoff; and, therefore, favors a high probability of flooding. It is considered that drainage density is an essential factor having a direct relationship with flooding (Ullah and Zhang, 2020). An area with low drainage density causes more infiltration and decreased surface runoff and is suitable for groundwater development (Dinesh Kumar et al., 2007).

On the other hand, the LULC of the barangay, classified into different types, is shown in Figure 3g. The categories identified include built-up, forest, mixed vegetation, water, perennial and seasonal crops. The perennial crops are the coconut, rubber, and plantation trees while the seasonal crops are the agricultural ones such as corn and other cash crops. Mixed vegetation is the intercropped of different plants which dominate the area covering 49.55% of the barangay. The seasonal crop is the second largest LULC with 27.12% cultivated for agricultural production. As a common observation, the rolling terrain of the barangay with unprescribed cultivation makes it more prone to flashflood and other natural hazards.

Another controlling factor considered in this study is the normalized difference vegetation index (NDVI). Figure 3h shows the generated NDVI of the area. This measures surface reflectance and quantify vegetation growth and biomass (Wu, Li, Wang, & Yan, 2016). This study classified the NDVI map into three classes to represent the different degrees of vegetation density with the lower and higher values for barren and vegetated lands, respectively. NDVI has a negative relationship with flooding, having a value range of -1 to +1. Higher NDVI values indicate lower susceptibility to flooding, and lower NDVI values indicate higher flood probability (Ullah and Zhang, 2020). In this study, however, the NDVI values range from -0.12 to 0.80 failed to prove the stated relationship maybe because of some controlling factors that the study has missed to consider.

Meanwhile, the annual rainfall map, classified into five different classes, is shown in Figure 3i. The demarcation of rainfall values into different classes determines the
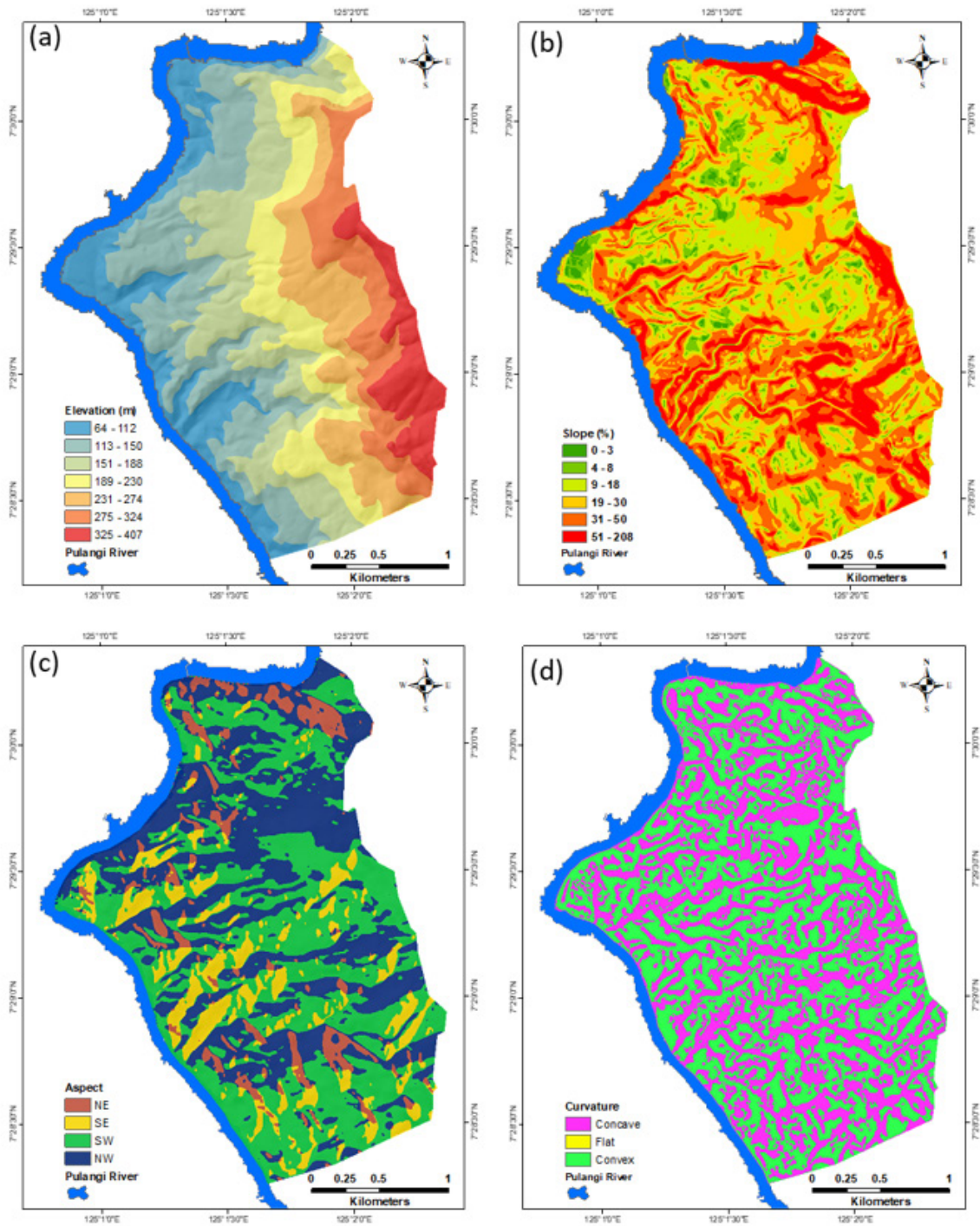
Figure 3. Triggering factors of flashflood hazard; (a) elevation, (b) slope, (c) aspect, (d) curvature

effect of rainfall amount to flash flood events in different locations. The highest rainfall is at the eastern part of the barangay with higher elevations. The rainfall pouring in these areas generates surface runoff that flows towards the Pulangi River, where most flash flood events occur. Accordingly, rainfall directly relates to river discharge, and a large amount of rain in a short time can generate flashflood in semiarid regions (Ullah and Zhang, 2020). The spatial analysis shows that the highest RF falls within the areas with lower rainfall amounts. However, the flash flood that occurred in these areas resulted from the accumulated rainwater from higher elevated regions that received a greater amount of rainfall.

Flashflood Susceptibility Map

After preparing the nine map layers of the flashflood controlling factors and giving weights of each parameter using the FR and RF method, a final flashflood hazard map was generated by the summation of each factor prediction rate and each class RF in a raster calculator of the ArcGIS 10.3 software. The flash flood susceptibility index map of Bukang Liwayway, classified into three levels of risk (low, medium, high), is shown in Figure 4. Results show that the areas exposed to flashflood with low, medium, and high-risk levels of susceptibility consist of 89.8, 4.4, and 5.7% of the total land, respectively. As shown in the FSI map, areas with higher levels of flashflood susceptibility, depicted

Figure 3. (continued).. (e) TWI, (f) drainage density, (g) LULC, (h) NDVI

Figure 3. (continued).. (i) rainfall.

Table 1. Frequency ratio and relative frequency for all classes of factors.

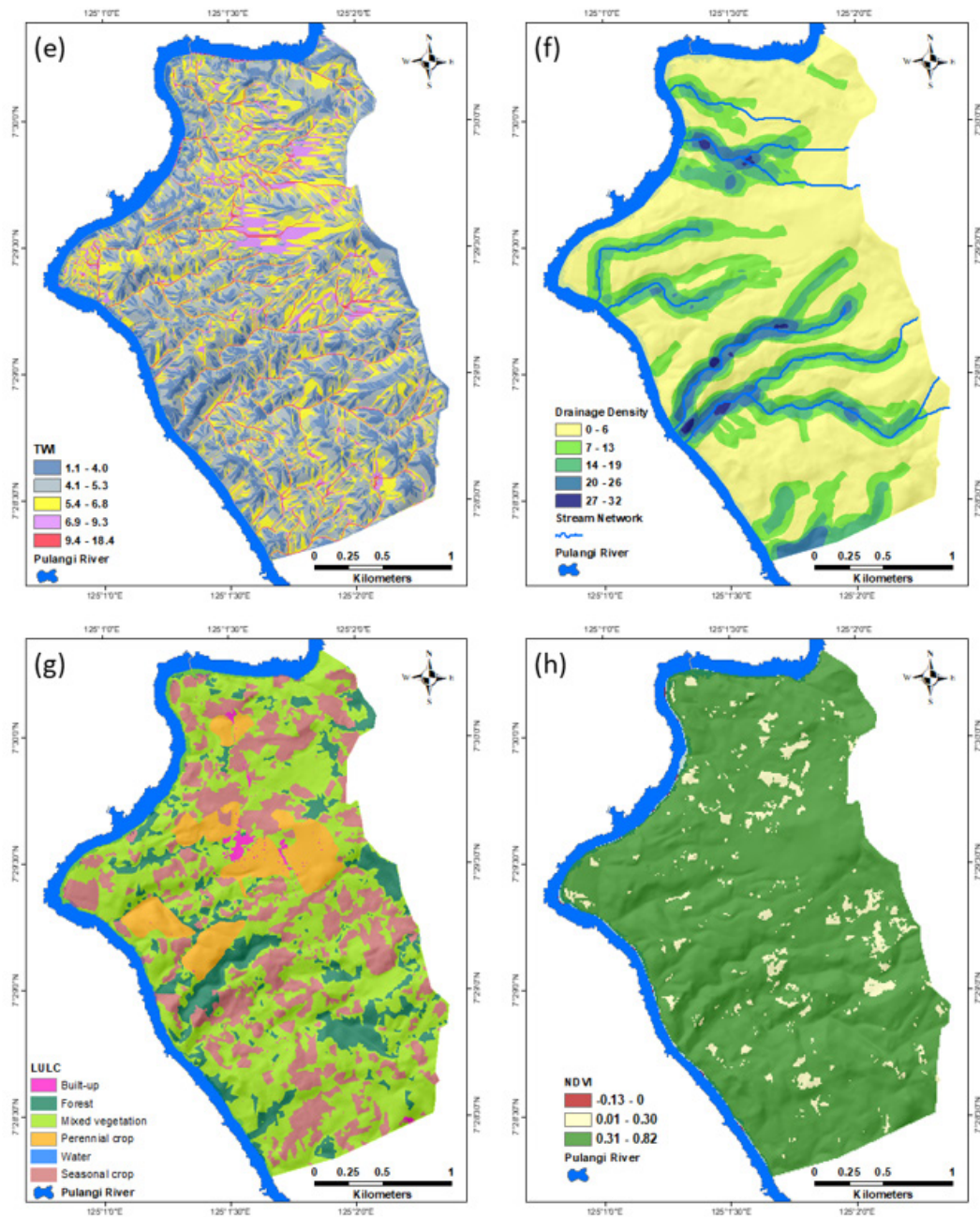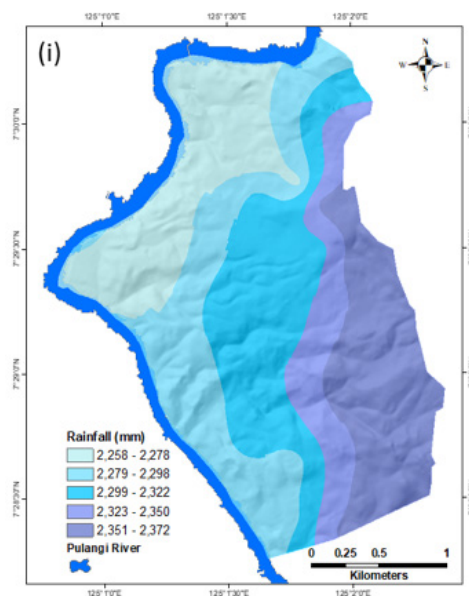| Factors	Factor Classes (a)	Sample Points (b)	% of Points (c)	Class Area (d)	% of Area (e)	FR (c/e)	RF
Elevation	64-112	80	50.00	99.93	16.03	3.12	0.561
	113-150	62	38.75	141.02	22.63	1.71	0.308
	151-188	10	6.25	116.35	18.67	0.33	0.060
	189-230	8	5.00	80.05	12.84	0.39	0.070
	231-274	0	0.00	79.37	12.74	0.00	0.000
	275-324	0	0.00	61.42	9.86	0.00	0.000
	325-407	0	0.00	45.06	7.23	0.00	0.000
Slope	0-3	7	4.38	8.89	1.43	3.07	0.335
	4-8	27	16.88	36.67	5.88	2.87	0.313
	9-18	44	27.50	131.94	21.17	1.30	0.142
	19-30	46	28.75	164.35	26.37	1.09	0.119
	31-50	33	20.63	180.32	28.93	0.71	0.078
	51-208	3	1.88	101.04	16.21	0.12	0.013
Aspect	NE	13	8.13	45.205	7.25	1.12	0.219
	SE	48	30.00	76.94	12.35	2.43	0.476
	SW	45	28.13	268.83	43.14	0.65	0.128
	NW	54	33.75	232.24	37.26	0.91	0.177
Curvature	Concave	144	90.00	292.5	46.93	1.92	0.911
	Flat	0	0.00	0	0.00	0.00	0.000
	Convex	16	10.00	330.72	53.07	0.19	0.089
TWI	1.01-4.0	10	6.25	139.54	22.39	0.28	0.018
	4.1-5.3	36	22.50	252.76	40.56	0.55	0.035
	5.4-6.8	42	26.25	161.03	25.84	1.02	0.064
	6.9-9.3	22	13.75	54.27	8.71	1.58	0.099
	9.4-18.4	50	31.25	15.62	2.51	12.47	0.784
Drainage density	0 – 6	6	3.75	372.99	59.85	0.06	0.005
	7 – 13	7	4.38	127.88	20.52	0.21	0.016
	14 – 19	78	48.75	90.64	14.54	3.35	0.258
	20 – 26	69	43.13	28.66	4.60	9.38	0.721
	27 - 32	0	0.00	3.05	0.49	0.00	0.000
LULC	Built-up	0	0.00	5.00	0.80	0.00	0.000
	Forest	49	30.63	79.81	12.81	2.39	0.454
	Mixed vegetation	66	41.25	308.78	49.55	0.83	0.158
	Perennial crop	23	14.38	58.22	9.34	1.54	0.292
	Water	0	0.00	2.41	0.39	0.00	0.000
	Seasonal crop	22	13.75	169.01	27.12	0.51	0.096
NDVI	<0	0	0.00	0.39	0.06	0.00	0.000
	0.01 – 0.30	0	0.00	38.71	6.21	0.00	0.000
	>0.30	160	100.00	584.34	93.76	1.07	1.000
Rainfall	2,258 – 2,278	40	25.00	128.44	20.61	1.21	0.514
	2,279 – 2,298	20	12.50	146.14	23.45	0.53	0.226
	2,299 – 2,322	17	10.63	148.98	23.90	0.44	0.188
	2,323 – 2,350	3	1.88	69.54	11.16	0.17	0.071
	2,351 – 2,372	0	0.00	130.07	20.87	0.00	0.000

with red, are concentered in the lower elevated areas with higher drainage densities. Similarly, Figure 5 shows the FSI map overlaid with the household and the road network map layers. This method allows determining the number of households at risk of a high level of flash flood hazard and the possible site for the evacuation center. Based on spatial analysis, 25 and 22 households in the barangay are exposed to high and medium levels of flashflood susceptibility, respectively (Figure 6). Areas with high flashflood susceptibility are mostly observed near the river banks particularly those with steeper slopes. Moreover, the soil properties particularly its texture are observed to be composed of loose particles and mostly sandy which makes it more prone to rainfall-induced landslide. The spatial distribution of flashflood susceptibility generated in this study is very helpful information in crafting a policy for risk reduction and mitigation thereby minimizing the impact of flashflood hazards in the affected communities. The recommended site for the evacuation center (Figure 5) is approximately 60 meters away from the barangay road making it readily accessible when a disaster occurs. The terrain is undulating to rolling with an average elevation of

Table 2. Weights of evidence or prediction rate for all conditioning factors.

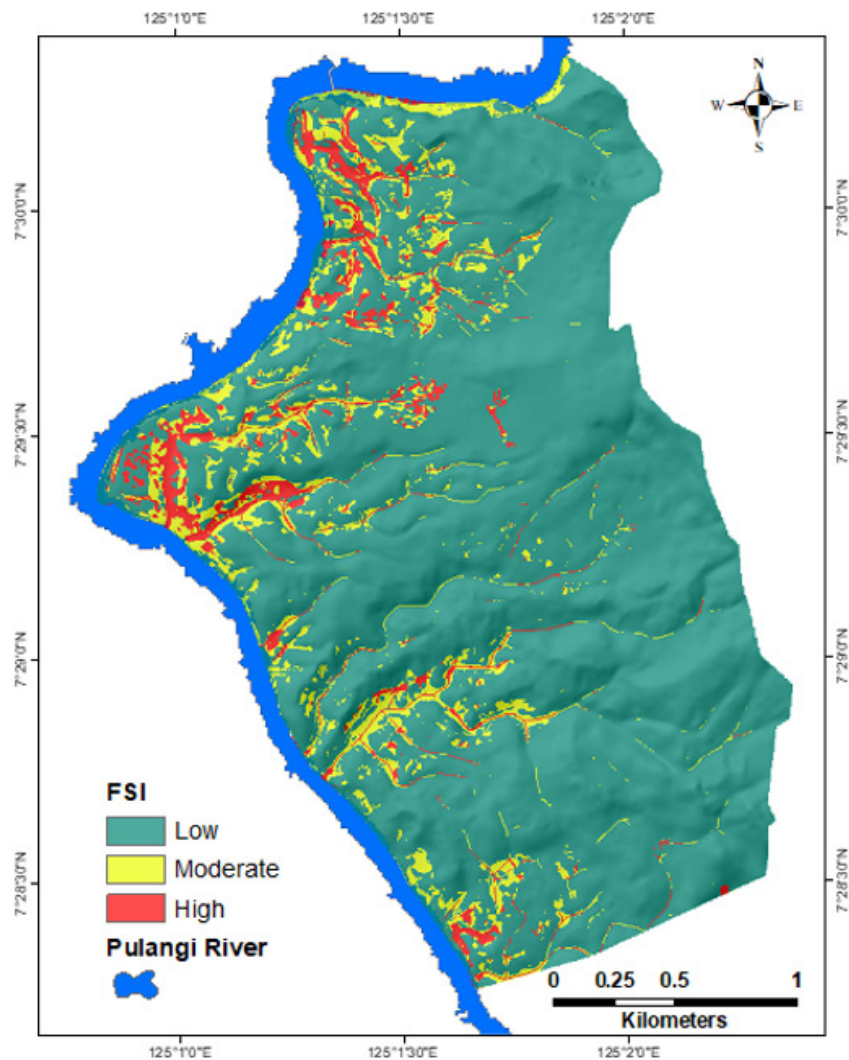| Factors	Relative Frequency (min)	Relative Frequency (max)	Relative Frequency (max-min)	Prediction Rate (PR)
Elevation	0.00	0.56	0.561	1.74
Slope	0.01	0.34	0.322	1.00
Aspect	0.13	0.48	0.348	1.08
Curvature	0.00	0.91	0.911	2.83
TWI	0.02	0.78	0.766	2.38
Drainage density	0.00	0.72	0.721	2.24
LULC	0.00	0.45	0.454	1.41
NDVI	0.00	1.00	1.000	3.11
Rainfall	0.00	0.51	0.514	1.60

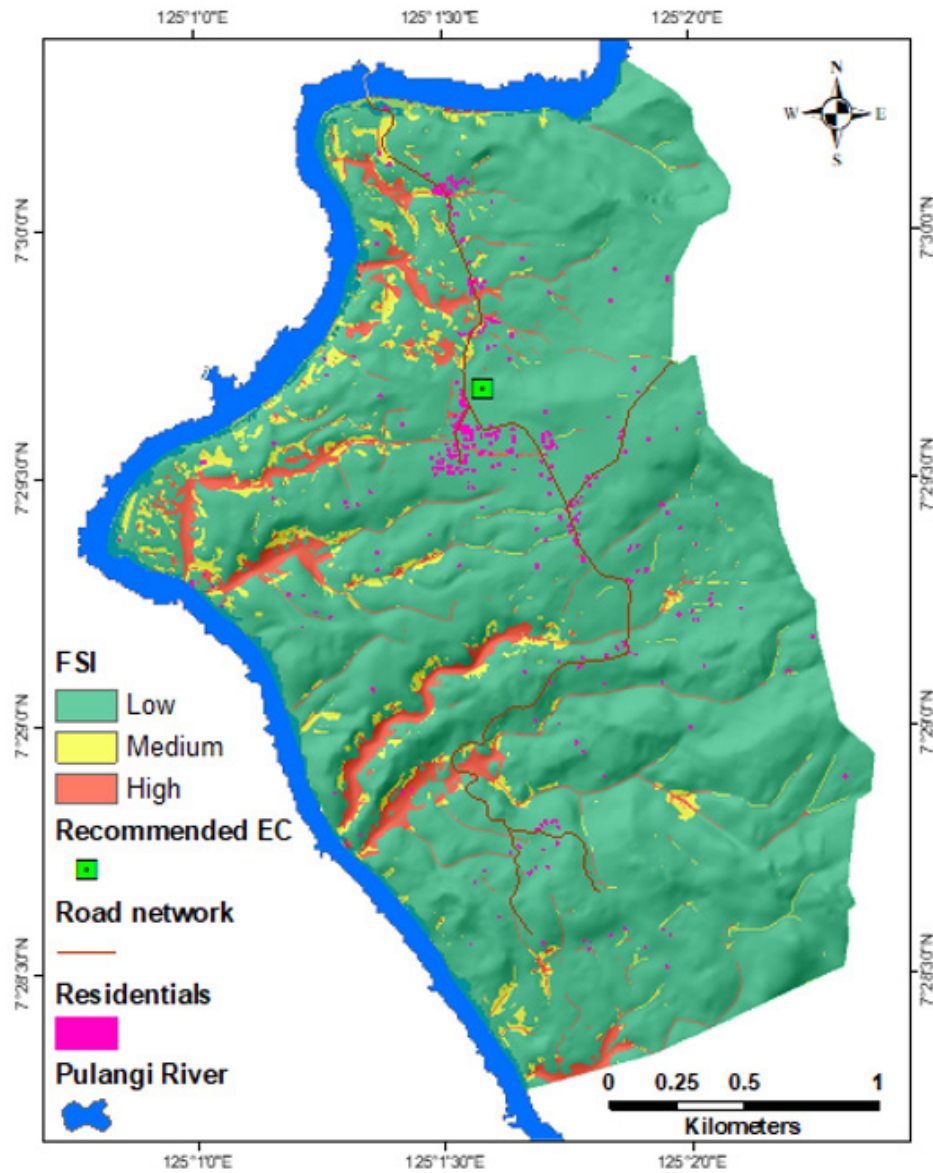Figure 4. Flashflood susceptibility index map.

Figure 5. Overlay of FSI and household maps showing the recommended site for evacuation center.
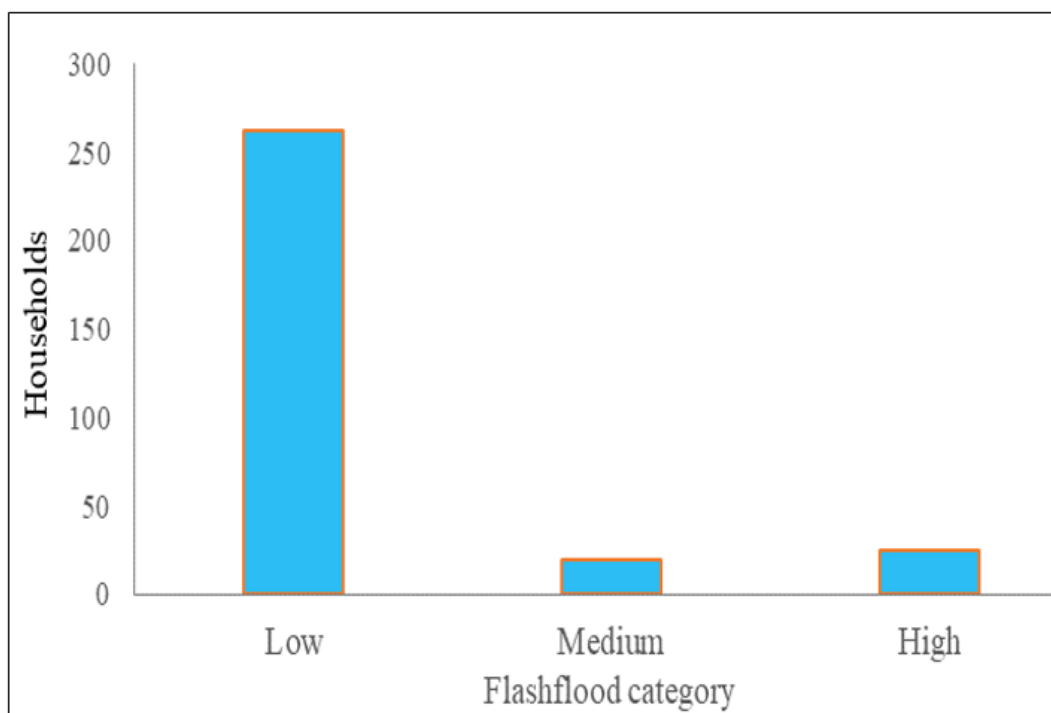

Figure 6. Number of households exposed to flashflood hazards.

around 150 meters above sea level.

CONCLUSION

Flashflood susceptibility index mapping is an essential step for future flood-related hazard management and monitoring. This study enables to assess the status of Bukang Liwayway in terms of flashflood susceptibility as well as determine the number of households that are at high risk of such natural hazards and identify a strategically potential site for an evacuation center. The thematic map layers of the nine controlling factors of flashflood hazards such as elevation, slope, aspect, curvature, topographic wetness index, drainage density, LULC naturalized difference vegetation index, and rainfall were generated following the GIS workflows. Classification of each factor was used as the basis for the relative frequency ratios and the prediction rates calculations. The flash flood susceptibility index map was generated by summing up the relative frequency values and the prediction rates of the nine-factor thematic layers using the raster calculator of the ArcGIS 10.3 application software. The generated flashflood susceptibility index map was classified into low, medium, and high-risk levels. Results show that 89.8, 4.4, and 5.7% of the total land area are at low, medium, and high risk, respectively, with 25 households exposed to high risk and 22 households exposed to medium risk. Further, based on the result of the spatial analysis, the strategic location for a possible evacuation center was identified.

This study's flash flood susceptibility index map can be an essential tool for disaster managers, decision-makers, and engineers in flood risk management plans. Based on the findings of this study, the concerned authorities can adopt appropriate mitigation and preparedness measures to minimize the negative impacts of prevailing and future flood hazards.

ACKNOWLEDGEMENT

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Predicting Organizational Change In Health Institutions
Through Management Communication: A Multiple Regression Analysis

Ruffa Mae S. Olbes and Ronel G. Dagohoy

Student, Bachelor of Science in Accountancy, Department of Accounting Education
University of Mindanao, Mabini Street, Tagum City, Philippines

ABSTRACT

The successful application of change plays a significant role in communication as it is used to announce, explain, or prepare individuals for change. However, researchers , unfortunately, cannot find any research studies studying the impact of organizational change in health institutions in the local context. The main objective of this study is to determine if there is a model that could significantly predict organizational change in health institutions. This study utilized a descriptive-predictive research method to determine the possible optimal outcomes of the organizations using the gathered data. The researchers used the Slovin's Formula to calculate the appropriate sample size resulting to 114 respondents of the study. To get the primary information; first – hand survey was conducted using adopted questionnaires – Development of a Measure to Assess Organizational Change by Szamozi and Duxbury (2002) and Validity and Reliability of the Management Communication Style Scale by Rozilah, Muhammad and Kalamuddin (2013). In predicting the organizational change, multiple regression analysis was utilized to create a model. It was revealed that the level of management communication is high while for organizational change is very high. Also, it was discovered that management communication had a positive significant relationship on organizational change. Moreover, management communication significantly influences the implementation of changes in the organization. Furthermore, the study revealed a model which describes the significant prediction of management communication towards organizational change in health institutions. This paper provided essential information for health institutions in implementing future changes in their organizations.

Keywords: Management Communication, Organizational Change, Prediction, Health Institutions

INTRODUCTION

Continuous change is the only constant within the organization, so numerous textbooks and literature on science and management discussed organizational change, but many of the efforts are unsuccessful (Elving, 2005). The reason for the change is either hidden or external variables (Woodward, 2010). Medical and health institutions are generally inclined to work hard to bring out change. Other employees are resistant, while others are ready to take part. Changes, for example, occur when there are medical emergencies, patient discontent, absence of staff, renewed top management, selfish attitude as a professional worker, and financial problems. Due to these barriers, changes may encounter distrust, doubts, and even rejection by the employees (Mares, 2018). The health institutions in the locality currently face these undesirable activities and scenarios.

Additionally, Vos et al. (2011) pointed out that Philippine health care systems have been dealing with the organizational shift throughout the decades with an increased demand for high performance, emerging technology and the people's their need and cure rights but limited resources have often challenged their sustainability. Resistance to change from the employees are one of the factors that challenge the change within the organization and gives negative impact on economic and geographic access as well as health services quality and efficiency. Brickman (2011) found out that St. Anthony Hospital experience a sudden change of renewing new management. Over 400 employees withdraw and retire from work for dissatisfaction. The organization lack of employer-employee communication. It pegged the failure rate of 70 percent. Improvements take longer than two or three years. According to Elving (2005), during the change cycle, uncertainty and work insecurity occur. The ambiguity of employees during the process indicates their feeling about the process and its private and social implications, which only harms the willingness to change. Demand is driven primarily by a growing and growing population.

Also, Malek and Yazdanifard (2012) state that organizations are not making additional attempts to enforce change as they merely announce it and expect staff to comply with it. In exchange, it becomes an obstacle to efficient change execution. As a result, organization members resist change as they see it as an adverse thing. Having that, some of the factors that staff resist change are the uncertainty that produces an effect on their work, the lack of recognition of the current person and organizational identities owing to the transition and anxiety of workers, and the organization itself, as they often do not strive hard to manage change. Moreover, Kumah et al. (2016) found that in the Ghanaian context, confusing the real position of these executives with inadequate assistance and absence of awareness of results in the place of front-line executives in managing healthcare change generates confusion and generally contributes to ineffective change.

Various studies on change management are linked with so many different factors. However, in the study of Nelissen and Martine (2008), they found out that planned change in an organization improves its favorable reactions to adverse ones. Excellent management communication would be one of the variables, mostly giving a helpful response to an organizational change. Communication survives in organizational modifications to those who are satisfied with leadership and score high on favorable response. Besides, Saruhan (2014) stated that effective communication plays a primary role in organizational change as it reduces the anxiety and resistance of staff to change and enhances their administrative management credibility. Effective communication is, therefore required to bring about a successful transformation in an organization.

Given the statements above and the links between management communication and organizational change, it is confirmed that many researchers have studied the relationship between these two variables in various organizations worldwide. Many researchers have been searching for the factors that directly affect having a successful organizational change, such as employee satisfaction, management communication, and information. However, there is no conducted study about organizational change in Sto. Tomas, Davao del Norte prior in medical institutions, hospitals, and such. The present study will provide to the existing literature gap; therefore, the researchers find the urgency and eagerness to conduct this study to find out if such a situation arises in health institutions in the local context. Further, the results of this study could be a point of reference for other health institution to enhance their commitment to change and become more productive and effective since this focuses on how to deal with the changes within the organization, making this research socially relevant, thus, the need to conduct this study.

The study aimed to predict organizational change through management communication in the health institutions of Sto. Tomas Davao del Norte. Moreover, the study dealt with the following objectives: a) to describe the level of management communication in terms of tell; sell; join; and, consult; b) to describe the level of organizational change in terms of communication of change; action to expand business; financial strategies for change; adequate communication and participation; and, bureaucratic acceptance and non-favoritism; c) to describe the significant relationship between management communication and organizational change in health institutions; d) to ascertain if management communication significantly influences organizational change in health institutions, and e) to create a model that would significantly predict organizational change in health institutions. The null hypotheses were tested at 0.05 level of significance that a) there is no significant relationship between management communication and organizational change in health institutions; b) Management communication does not significantly influence the organizational change in health institutions; and, c) There is no model that would significantly predict organizational change in health institutions.

The study was anchored and affixed on credible theories and models. The Change Management Theory by Kotter (1996) enlightened how organizations manage the change within that are created by the intentional actions of the managers – interacting with the employees and anchoring new culture to administer the manifested change to avoid resistance to change. Management communication has a direct effect on organizational change effectiveness, and many of the change theories, such as Lewin (1997), asserted that information is the best way to motivates employees to change. Lack of communication contributes to a more significant reason for the failure of an organizational change. It was discovered in the model of resistance to change by Oreg (2006) that personality and context are the factors that constitute resistance to change. Furthermore, the persona is best describe as the personal trait or preference of a person that can affect its choice of adopting or resisting change. On the other hand, context is concerned with the consequences and how the change was implemented concerning the employee's resistance to change. However, employees' resistance to change may vary upon the implementation of it.

These propositional claims and theories are taken as the framework of the study since it covers the interaction of the two variables in this research. The theories show the critical role of management communication in the occurrence and implementation of organizational changes that may affect its productivity and effectiveness.

Presented in Figure 1 is the conceptual framework showing the variables of the study. The independent variable of this study is the management communication with the following indicators; tell, which refers to the interaction of the employees to the employers that increases both task and relationship relevant; sell, which refers to the managers explaining all the details to the employees of the made decision in a persuasive manner; consult, which refers to the organizational relationship in which shares ideas and decisions; and, join which refers to the group of employees to obtain the responsibilities for the shared task decision (Rozilah, Muhammad, & Kamaluddin 2013).

The dependent variable is the organizational change with the following indicators; communication of change, it refers to the way of communicating when a change occurs within the organization; action to expand business, which refers to the planning of better choices in improving the business; financial strategies for change, which refers to procedures to be financial stable within an organization in the process of change; adequate communication and participation, which refers to the lack of empowerment and the use of skills of the employees; and, bureaucratic acceptance and non-favoritism, which refers to the bureaucratic resistance of employees to change. Eliminating bureaucracy and resisting to change are non-supportive to change (Szamosi & Duxbury, 2002).

METHODOLOGY

This paper is a quantitative research study, whereas according to Parohoo (2006), a quantitative approach begins with the assumption that human behavioral factors and phenomena can be objectively and statistically studied. Moreover, this study utilized a descriptive-predictive design to predict organizational change through management
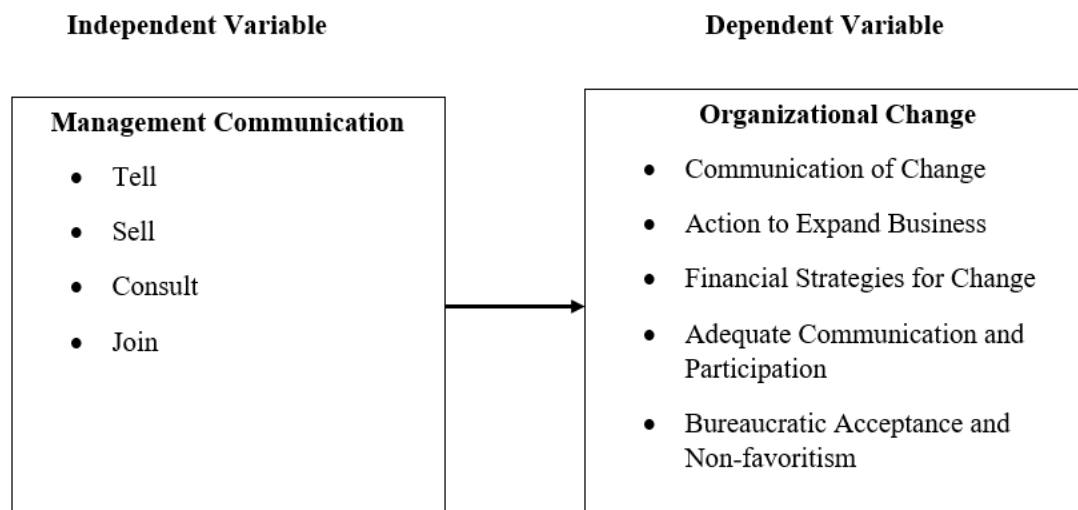
Independent Variable	Dependent Variable

Management Communication	Organizational Change
• Tell	• Communication of Change
• Sell	• Action to Expand Business
• Consult	• Financial Strategies for Change
• Join	• Adequate Communication and Participation
	• Bureaucratic Acceptance and Non-favoritism

Figure 1. Conceptual Framework Showing the Variables of the Study

Table 1. Distribution of Research Respondents

Health Institutions	Number of Employees	Percentage	Sample size
Hospital A	15	9%	11
Hospital B	52	33%	37
Hospital C	15	9%	11
Hospital D	23	14%	16
Hospital E	55	35%	39
Total	160	100%	114

communication. The research can help a company consider what could happen next, and all forecasts are focused on the data presented and are probabilistic by nature (Giaglis, 2009). This model is also used to analyze the data obtained and to fill in the knowledge on the different aspects of the organizations, and recommend steps to achieve optimal results (Hey, 2010).

The study was conducted at Sto. Tomas, Davao del Norte, where the respondents are the current workers of health institutions. They were deemed knowledgeable about the subject matter and capable of providing factual data that is necessary for the completion of the study. The sample size was determined based on Slovin's Formula. Through the use of the formula, there were 114 respondents determined. Moreover, random sampling applies to a set of selection strategies with a defined probability of selection. Participants are chosen by chance (Lavrakas, 2008); thus, it is used in this study.

This study adapted downloadable questionnaires from web sources. The questionnaires are from the study Development of a Measure to Assess Organizational Change by Szamosi, and Duxbury (2002) and the study Validity and Reliability of the Management Communication Style Scale by Rozilah, Muhammad, and Kamaluddin (2013). After the approval of questionnaires checked by the research panelists, the researchers asked for a permission to conduct an initial investigation in Municipality of Kapalong, Davao del Norte using the pilot testing to test the accuracy, validity, and reliability of the questionnaires with the assistance of Cronbach Alpha via pilot testing. Cronbach's Alpha tested a scale's accuracy;

it is also referred to as internal consistency (Boneth and Wright, 2014). Thirty (30) respondents were used in pilot-testing, whereas Management Communication generated a Cronbach's Alpha of 0.874 while Organizational Change resulted in 0.877, both higher than the required 0.70 for its reliability.

After acquiring the validation results, the researchers personally distributed and administrated the research instruments to the respondents to ensure one hundred percent (100%) retrieval of the questionnaires. A permission letter was given to the managers to be approved and led the researchers to survey the institution. Once the questionnaires were settled, the researchers started the survey. The data that the researchers gathered was tallied, tabulated, analyzed, and interpreted based on the objective or purpose of the study.

For the statistical treatment, different types of tools were used at a 0.05 level of significance. Mean is used for the level of management communication and organizational change. Pearson r for the analysis determining the relationship between management communication and organizational change and Multi-Linear Regression Analysis in determining if management communication significantly predicts organizational change.

The researcher asked permission from the authorities on the conduct of the study. This is to ensure respect to higher authorities and address ethical considerations. Further, the researchers ensure the voluntary participation of the respondents. The letter of
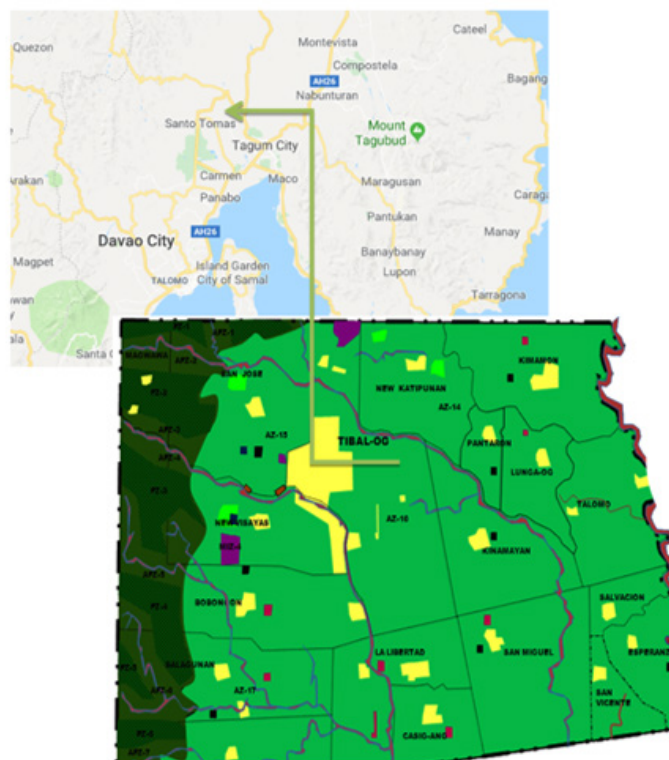
Figure 2. Geographical Map of Sto.Tomas, Davao del Norte

RESULTS AND DISCUSSION

This section reveals the presentation and analysis on the level of Management Communication and Organizational Change.

Level of Management Communication

Shown in table 2 are the mean scores for the indicators of management communication with an overall mean of 4.11 described as *high* with a standard deviation of 0.57. This means that the respondents' response to management communication were manifested in all items. This enlightens that employees of health institutions use management communication to have a productive relationship and communication as mentioned in the questionnaires. This result is similar to Oteyza et al., (2018) that signs of effective leadership communication were discovered among staff and employers where they explained that having a healthy inner connection and powerful message relays.

Consult is one of the management communication's indicator is described as high with the highest weighted mean of 4.19 and a standard deviation of 0.64. This means that Consult is essential between employees and managers to have effective management communication. This indicates that an active engagement and mutual respect

between management and employees is vital within the organization. This finding conform to the study of Enayati (2002) which mentioned that group decision-making is useful to the organization. This method increases norms of interaction (clearness, fairness, listening to others, and taking each other seriously) and guarantees a formal and fair debate within the company. Also, this result is associated with the statement of Martin et al. (2018) that managing duties (comprehending the situation, developing action responses, executing responses, and managing the continuing situation) can be encountered both as a cause of manager pressure and as a chance to enhance leadership abilities.

Moreover, the first two dimensions, *Tell* and *Sell*, have the lowest weighted mean of 4.04 and a standard deviation of 0.63 and 0.66, respectively, thus, described as high and are manifested. The outcome suggests that the dimensions mentioned are essential to have effective management communication between employees and employer's relationship. This means that if staff have the freedom to express themselves for the sake of a good business, they are more likely to feel safe and fulfilled with their roles, encouraging them to be more helpful and cooperative. This is in congruence with the view of EL Nabawy Saleh Dewydar (2015) who avowed that staff loves the organization that provides them the chance to express their thoughts and to do their utmost. It is essential to understand how to solve any scenario that occurs to suggest and share data between staff and management. Moreover, it was indicated in the study of Lanneborn and Lofgren (2013) that the fact that executives can satisfy the organizations' employee expectations makes things much more straightforward. Management can thus gain the confidence of the staff and create with them a sound

approval was explained on the procedure, purpose, and limitation of the survey and are guaranteed that they are not harmed and protected from whatever potential risks that may emerge. Informed consent was signed, read, and explained. Additionally, respondents can choose whether to write their names or not for the sake of privacy.

Table 2. The Level of Management Communication in Health Institutions

Management Communication	Mean	SD	Description	Interpretation
Tell	4.04	0.63	High	Manifested
Sell	4.04	0.66	High	Manifested
Consult	4.19	0.64	High	Manifested
Join	4.09	0.63	High	Manifested
Overall mean	4.11	0.57	High	Manifested

Legend:
1.00 – 1.79 Very Low   2.60 – 3.39 Average   4.20 – 5.00 Very High
1.80 – 2.59 Low   3.40 – 4.19 High

Table 3. The Level of Organizational Change in Health Institutions

Organizational Change	Mean	SD	Description	Interpretation
Communication to Change	4.34	0.61		Always Manifested
Action to Expand Business	4.17	0.71	Very High	Manifested
Financial Strategies for Change	4.15	0.71	High	Manifested
Adequate Communication and Participation	4.41	0.50	High	Always Manifested
Bureaucratic Acceptance and Non-favoritism	4.52	0.44	VeryHigh	Always Manifested
Overall mean	4.35	0.35	Very High	Always Manifested

Legend:
1.00 – 1.79 Very Low   2.60 – 3.39 Average   4.20 – 5.00 Very High
1.80 – 2.59 Low   3.40 – 4.19 High

basis. Furthermore, Abugre (2011) discussed that the data supplied by the executives need to be well understood by the staff and vice versa for efficient communication regularly.

Level of Organizational Change

Shown in Table 3 the data on the level of organizational change which gathered an overall mean of 4.35 and a standard deviation of 0.35 with a descriptive level of *very high*. The score of very high signifies that dimensions of organizational change are always manifested. This means that health organizations view organizational change as a way to become more profitable and successful in business, and they are encouraged to take risks and use the changes to become more productive. Similarly, Ian and Richard (2008) found that organizational change is needed for the organization to continue to progress.

Furthermore, *Bureaucratic Acceptance and Non-favoritism*, the last indicator has the highest weighted mean score of 4.52 with a standard deviation 0.44 that resulted in a very high description level and is always manifested. This enfolds that *Bureaucratic Acceptance and Non-favoritism* is an essential factor for the effective implementation of change in an organization. This means that health institutions are actively preparing how to deal with employee criticism and accept improvements internally and externally without prejudice or favoritism in order to prevent inter-institutional disputes. This corresponds to what Adeniji et al. (2013) found out that resistance to change at the level of an organization, group, or person gives rise to organizational inertia in which it unwillingly forces an organization to improve. In addition, Greer (2011) stated that the more comfortable and more efficient the method of change becomes, the

more an organization change. It is also disclosed that the overarching deregulatory strategy from the opposition of the healthcare industries reproduces lower impacts, while innovative governance, which could support coalitions, makes it unexpectedly efficient.

Moreover, *Financial Strategies for Change* weighted a mean score of 4.15 with a standard deviation of 0.71 that resulted in a high description level and is also manifested. This means that *Financial Strategies for Change* provides importance to the internal organization to implement change successfully. This indicates that health institutions are considering their financial resources, strategies, and economic plans in order to deal with adjustments in their management and build a more solid relationship with their business's future. This was proven in the study of Delkhosh and Mousavi (2016), where they discovered that viewing the economic policy in the form of strategic action shows the organization's perfect picture of a bright and desirable future that could contribute to the achievement and better financial systems. One of the strategic financial management's goals is to obtain the shareholder's wealth that could propel the organization to the ever-growing economic achievement.

Relationship of Management Communication and Organizational Change

This section reveals the analytical data and presentation about the relationship between the Management Communication and Organizational Change in Health Institutions.

Table 4 shows the computed correlation between management communication and organizational change. The overall r-value of 0.607 with a p-value of 0.000 which

Table 4. Correlations between Measures

MANAGEMENT COMMUNICATION	ORGANIZATIONAL CHANGE					
	I1	I2	I3	I4	I5	Overall
Tell	0.456**	0.341**	0.519**	0.325	0.146	0.545**
	0.000	0.001	0.000	0.001	0.015	0.000
Sell	0.486**	0.281**	0.430**	0.270**	0.015	0.000
	0.000	0.006	0.000	0.008	0.086	0.450**
Consult	0.529**	0.250*	0.418**	0.275**	0.78	0.437**
	0.000	0.000	0.000	0.000	0.000	0.000
Join	0.592**	0.626**	0.732**	1.000	0.885**	0.613**
	0.000	0.000	0.000	0.000	0.000	0.000
Overall	0.783**	0.880**	0.938**	0.885	1.000	0.607**
	0.000	0.000	0.000	0.000	0.000	0.000

Legend:
I1 – Communication to Change
I2 – Action to Expand Business
I3 – Financial Strategies for Change
I4 – Adequate Communication and Participation
I5 – Bureaucratic Acceptance and Non-favoritism

is less than 0.05 level of significance set in this study.

Generally, connection between the two variables reveals a strong positive significant relationship between management communication and organizational change among the employees of health institutions in Sto. Tomas Davao del Norte. This implies that organizational change is influenced by the management communication in health institutions. Further, this means that manifestation of effective management communication play as a significant aspect in implementing organizational change particularly in promoting good relationship between the employees and employers in improving business efficiency. As a result, employees believe that management recognizes their value when they use words and gestures that are motivating and encouraging to make them feel safe and comfortable in the workplace, implying that they are encouraging desirable behavior. Due to this positive employee-employer relationship, employees' satisfaction in engaging, behaving, supporting, and performing their jobs well in the business increases. Consequently, when organizational change is optimized, internal management coordination improves as well.

The result is analogous to the findings of Malek and Yazdanifard (2012), exposing that communication plays a significant part in the practical application of change, as it is used as a means to announce, explain or prepare individuals for change. Furthermore, Allen et al. (2007) stated that the remains a lack of comprehension of the procedures by which staff tackle such perceptions; even uncertainty is regarded to be a significant result of employee organizational change. This result verified views; adequacy is the primary predictor of readiness for change in the organizational environment where appropriate and timely communication can compensate for absence of involvement in organizational transformation decision-making (McKay et al., 2013); and communication and fair employee involvement are essential to a successful application of change, as efficient communication serves many tasks such as data sharing, engagement, compliance, and feedback (Yazdanifard, 2012).

Influencing Organizational Change through Management Communication in Health Institutions

This section reveals the analytical data and presentation ascertaining the influence of Management Communication in Organizational Change in Health Institutions.

Shown in Table 5 is the data resulted from regression analysis which revealed the significant influence of the overall management communication to the organizational change in health institutions. It shows that the computed F-value of 12.498 with corresponding P-value of 0.000 is lower than 0.05 level of significance. Furthermore, this indicated a significant influence on management communication on organizational change in health institutions since the probability value is p<0.001.

For further analysis, the data revealed that among the indicators of management communication which have best influences on organizational change in their singular capacities are the tell, t=2.964, p=0.004, and join, t=2.461, p=0.016 since both have the probability value less than the alpha value. The rest of the indicators like sell and consult cannot significantly influence organizational change in their singular capacities since their p-value are more than 0.05. They need the support of other indicators to have signicant influence on organizational change.

The coefficient of determination, which is the r-squared value illustrated that 35.5 percent of the variance in organizational change was credited to the indicators of management communication while the remaining 64.5 percent is coefficient of alienation that is not part of the study. The data illustrates that, in general, management communication has a significant influence on organizational change. The results prove the proposition of Eleanor et al. (2014) that understanding the effect of management communication styles can enhance the leadership abilities of management in moments of change application, resulting in less opposition, wealthy communication, foster engagement, and employee engagement.

The result further strengthened the claim of Duah and Danso (2017), where they addressed that having the

Table 5. Significance of the Prediction of Management Communication towards Organizational Change of Health Institutions

Management Communication	Organizational Change			
	B	B	T	Sig.
Constant	2.883			
Tell	0.213	0.390	2.964	0.004
Sell	-0.012	-0.022	-1.131	0.896
Consult	-0.012	-0.023	-1.139	0.890
Join	0.173	0.314	2.461	0.016

R = 0.595
R² = 0.355
F = 12.498
P = 0.000

staff decide in the best interests of the organization makes them commit more responsibly and skillfully to their work. Besides, management requires to educate staff in the scheduling phase to receive feedback and discuss potential issues in the future. Listening to the employees and vice – versa establish a good employment relationship in times of changes. Likewise, the findings gathered by Samwel (2018) indicate that a favorable connection between staff who are acceptable to the organization and the performance of the team to the organizational change makes them more encouraged to think for the best for the organization and willing to participate in the decision-making process.

Predicting Organizational Change through Management Communication in Health Institution

This section reveals the simulation of the model predicting Organizational Change through Management Communication.

Below is the formula for predicting the independent variable which is the organizational change in health institution. Further, simulation of the said model is also discussed in this section.

Formula for Multiple Linear Regression:
$$y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$$
Model for Organizational Change in Health Institutions

$$y = 2.883 + 0.213 \, (Tell) - 0.012 \, (Sell) - 0.012 \, (Consult) + 0.173 \, (Join)$$

Simulation Result for Organizational Change Model:

Tell	Sell	Consult	Join	Organizational Change
4.01	3.02	2.58	4.50	4.45

Legend:
1.00 – 1.79 Very Low   2.60 – 3.39 Average   4.20 – 5.00 Very High
1.80 – 2.59 Low   3.40 – 4.19 High

Based on the model and applying the simulated data we can concluded that, if a health institution is having a high conveying factual information (4.01), average discussion of details of plans (3.02) with low consulting of ideas and thoughts (2.58), and very high level of letting the staff decide for the organization (4.50), the health institutions would gain a very high-level successive rate of implementation of change (4.45). This means that if

the organization will enact changes, its implementations will be effective if it is accepted by most employees. Participation and positive communication between the employee-employer makes their works efficient and more productive.

CONCLUSIONS AND RECOMMENDATIONS

The study revealed the importance of management communication in an organization experiencing changes. This signifies that the health institutions of Sto.Tomas are manifesting changes in order to be successful foundation. This also means that the communication and participation of both employees and employers for the overall institutions contribute positively to the successful implementation of change. Also, it enlightens that health institutions use management communication to build effective communication and a good relationship among the employees and management.

Moreover, the present study shows the significant link between the management communication and organizational change in health institution in local context. This confirms the proposition of Lewin (1997), that management communication has a direct effect on organizational change effectiveness and that information is one the of the best way to motivates employees to participate and accept change. Likewise, this result validated Kotter's (1996) Change Management Theory, which emphasized how organizations manage the change within that are created by the intentional actions of the management – interacting with the employees and anchoring new culture to administer the manifested change to avoid resistance to change and strengthens the employee-employer relationship.

The overall management communication significantly influences the organizational change in health institutions. In terms of their singular capacities, tell and join are the dimensions that best influence the organizational change. However, sell and consult can also influence organizational change in health institutions but with the support of other dimensions. This means that the effectivity of implementing change is depending on how the organization manage to subdue and make the employees understand and work their responsibilities with

the said changes.

The result which underscores this study is that tell and join in their singular capacities significantly influence the organizational change in health institutions. Therefore, the researchers recommends the health institutions, to achieve the desired change, the management must build a positive relationship with the employee and must provide some activities that can boost the cohesion between their employees. This will motivates the employees to take their responsibilities if they are given the proper information and can join in the decision making process in the occurrence of implementing changes. This implies that the health institutions should incorporate ideas that centered on dealing changes for the both parties. The management need to recognizes their employees skills and let their employees become more acquainted with them.

Pursuing the above recommendation, the health institutions may deliver more effort to encourage the employees to be more participative and communicative about the welfare of the company. Also, employees should continue to adopt changes enthusiastically to prevent implementing change unsuccessfully and to help achieve effective communication within the organization while implementing changes. They should cooperate with every decision – making of the organization. They may also help to re-evaluate their dealings in the implementation of change to further increase its successive rate.

Additionally, the study found an existing significant relationship between management communication and organizational change in health institutions, thus, the management must be consistent in building relationship with their employees especially during the implementation of change to achieve the desirable outcomes. In the same manner, it is recommended to continue giving the employees the opportunity to engage theirselves in the supervision of the management in order for them to appreciate and learn the importance of the organizations plans. This can promote a positive feedback from the employees and their adequate participation and communication that will help the implementation of change be successful. Subsequently, future researchers can do some further research that this research was not able to cover up. Further, since the study revealed a low r – squared value, the researchers recommend studying the remaining factors that may affect the successful implementation of change within the organization.

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Compliment and Compliment Response Strategies from Photo Comment Sections as used by Filipino Facebook Users

Kimberly M. Mejorada, Kimberly G. Opo, and Dr. Mary Ann P. Malimas

Department of Communications, Linguistics, and Literature,
University of San Carlos, Cebu City, Philippines

ABSTRACT

Compliments and compliment responses are prevalent in Social Networking Sites (SNS), like Facebook. This study was conducted to investigate the compliment and compliment response strategies produced by Facebook users in photo comment sections. This study used the qualitative and quantitative design in spotting and analyzing the felicity conditions of compliment and compliment response strategies produced by thirty participants. Using Zhang's (2013) taxonomy for compliment strategies, the results showed that the most used approach in complimenting is Explicit compliment, in which the complimenters used adjectives that carry positive values. Meanwhile, using Yu's (2004, cited in Tamimi Sa'd', 2015) taxonomy for categorizing compliment response strategies, the Face Relationship-related Response Strategy is the most common strategy used by the complimentees in responding to the received compliments. Most of the complimentees chose not to accept, amend, or reject the compliment. Instead, they dealt with the compliment implicitly within the interaction, preferring not to directly address the prepositional content of the compliment. It was revealed that the use of strategies depends on the relationship between the complimenter and the complimentee. Their relationship may influence the kind of strategies and words the complimentees use in their responses. The social media users, as they read this study, will be aware of how compliments and compliment responses function and are structures in this online setting, which may incite them to use these two social acts more strategically.

Keywords: compliment strategies; compliment response strategies; complimenter; complimentee; Facebook; politeness; Social Networking Sites

INTRODUCTION

Information and communication technologies are rapidly developing as time passes by, which led language researchers to examine language use as produced and interpreted in Computer-Mediated Communication (CMC). CMC can be defined as the interaction between two or more people via connected computers using chatrooms, Emails, Social Networking Sites (SNS), text messages, etc. SNS have become a means for communication and self-expression that bring together users beyond borders. This is clearly manifested in the expression of compliment and compliment responses.

Moreover, compliments (Cs) and compliment responses (CRs) are prevalent in SNS, like on Facebook. Compliments are used to start a conversation that reinforces interaction between the interlocutors. As stated by Holmes (1998), a compliment is a speech act that explicitly or implicitly attributes credit to someone. It is an expression of positive evaluation that commonly occurs in everyday conversational encounters among people. Most definitions of compliments specify two conditions, namely: (1) and expression of admiration towards (2) possessions, accomplishments, or personal qualities of the complimenter.

As technology grows, communication does not only happen on face-to-face encounters anymore; most of the people are now using CMC. Communicating through social networking sites happens most of the time.

Therefore, in the present paper, the researchers want to explore computer-mediated communication to investigate the Cs and CRs strategies found in the Facebook photo comment section, produced by Filipino users.
Furthermore, it is crucial to address the compliment and compliment response strategies in CMC, most specifically in the Facebook photo comment section, because this area has not been studied yet. Therefore, the goal of this study is to fill the gap in that area and produce an elaborate investigation of the strategies of Cs and CRs in CMC.

REVIEW OF LITERATURE

Communication under Facebook Conditions

A compliment is an everyday speech act frequently exchanged among interlocutors. Compliments and compliment responses are encountered everywhere, even in social networking sites such as Facebook, Instagram, Twitter, and other social media applications. According to The Statistics Portal, Facebook was the first social network to outdo 1 billion registered accounts and currently at 2.2 billion monthly active users. This makes it the most popular means of communication and self-expression. This has also become a platform where people recurrently compliment other people and also respond to the compliments they

Corresponding author:
Kimberly M. Mejorada
Email Address: kmejorada2018@gmail.com

receive.

Cavalli et al.'s (2011) study on Facebook Influence on University Students' Media Habits illustrated how chatting and video conferencing in Facebook satisfies requirements of face-to-face conversation, and the requirements that are essential for conversational analysis: context (online), time, environment, participants, metalinguistic features such as personality and so on. Needless to emphasize, Facebook chat/messenger and comment sections allow the practice of ordinary conversation dynamics such as turn-taking, repair, humor or banter, sarcasm, and mutual praise.

Additionally, Facebook discourse is a rich source of language practice that serves as a bean pod for research. Communication between persons in the chatroom (which is not different in the Facebook chat platform) conveys lexical, syntactic, and semantic information that compromised written forms, which is in turn is analyzed under pragmatics of social media (Hoffmann & Bublitz, 2017). The performance/interpretation of social acts via written statements correspond the ones performance by utterances in face-to-face communication.

Moreover, according to Silverman (2001, as cited in Peräkylä & Ruusuvouri, 2015), it is best to use 'naturally occurring empirical materials' instead of turning to tape-record conversation. Indeed, the Facebook comment section is a good example of naturally occurring empirical materials since it corresponds to the conditions of face-to-face encounters.

Compliment Strategies

There are plenty of ways to compliment. Zhang (2013) dealt with two strategies in complimenting someone. These strategies are:
(1) Explicit Compliments, which are utterances that attribute credit to someone other than the speaker for some good, which is positively valued by the speaker (Holmes 1998, cited in Boyle, 2000), and that they contain a semantically positive adjective, verb, or adverb.
Examples: a) Terrific presentation this morning!
            b) I like your hair short like that.
(2) Implicit Compliments are those in which the value of judgement is presupposed and, or implicated by Gricean maxims (Herbert, 1997, cited in Zhang 2013).
Examples: a) I wish I could manage my work like you do.
            b) Your husband is a very lucky man.

Moreover, Ye (1995, cited in Xiang, 2013) called explicit compliment as a direct compliment, and it refers to the compliment giver who can express praise or admiration to someone without any context. Ye (1995, cited in Xiang, 2013) called implicit compliment as an indirect compliment, and it refers to the compliment giver who cannot express praise or admiration to someone directly.

Compliment Response Strategies

There are many ways of responding to compliments. Yu (2004 in Tamimi Sa'd', 2015), identified six (6) strategies in responding to compliments. These strategies are:

(1) Acceptance Strategies are utterances that recognize the status of a preceding remark as a compliment.
(2) Amendment Strategies involve speakers who try to amend the complimentary force of the compliment offered.
(3) Non-acceptance strategies refer to when the speakers "deny, question, or joke about the compliment's content or avoid responding directly to the praise" (Yu, 2004 as cited in Tamimi Sa'd', 2015, p. 92).
(4) Face relationship-related response strategies are strategies that do not appear to, as in the above main strategies, accept, amend, or reject the compliment. Instead, they deal with the compliment within the interaction, not with the prepositional content of the compliment. Example:" Yeah, that's what one is supposed to do in such situations."
(5) Combination strategies constitute two or more of the compliment response strategies mentioned above. Example: "Thank you. But I don't think so." (Acceptance + Disagreement)
(6) No acknowledgement refers to where the person might choose not to respond to the compliment addressed to him or her.

The following are the related studies:

First, Suketi (2014) studied the compliment response strategies used by university students of Wacana Christian University and how they responded to the compliment given in academic consultation. He found out that most of the participants tend to use acceptance strategies. In accepting compliments, his participants tend to utter the word 'thank you' to replace 'yes, I agree.' He noticed that 'thank you' was used in accepting the compliment rather than showing gratitude.

Moreover, Suketi's (2014) study was supported by In Yu (2004, cited in Chung and Chen, 2010). The study focused on compliment response strategies employed by Taiwanese EFL young learners in two situations. The compliment was given by people with a higher and equal status on their performance. According to Yu (2004, cited in Chung and Chen, 2010), the results showed similarities and differences in compliment response strategies between Taiwanese EFL young learners and native English speakers. When a compliment was given by someone higher than the participant's status, the participants feel honored and appreciated. However, when the compliment came from their peers, they mostly become alert and will not accept the compliment right away as it is regarded as arrogant.

Another study that supports Suketi's findings was conducted by Herbert & Phoocharoensil (2012, cited in Suketi, 2014), who took a comparative research on American and South Africa compliment responses used by university students. The study showed that Americans display a high frequency of compliment expressions and a low frequency of compliment acceptance. However, South Africans give a relatively smaller number of compliments than Americans but accept compliments with higher rate.

Studying compliments and compliment responses in an academic setting plays a significant role

as this is the most common speech act used in everyday communication. Therefore, the current researchers focused on computer-mediated communication centring the Facebook photo comment section by Filipino users because this area has not been explored more by the previous researchers mentioned in this paper.

This study aimed to investigate on the compliment strategies and compliment response strategies in the Facebook photo comment section from the participants. Specifically, this study sought to answer the following questions:

1. Following Zhang's (2013) taxonomy, what are the compliment strategies found in the Facebook photo comment section?
    1.1. Explicit Compliment
    1.2 Implicit Compliment
    1.3 or both

2. Following the taxonomy of Yu (2004, cited in Tamimi Sa'd', 2015), what are the compliment response strategies used by the complimentee found in the Facebook photo comment section?
    2.1 Acceptance Strategies;
    2.2 Amendment Strategies;
    2.3 Non-Acceptance Strategies;
    2.4 Face Relationship-related Response Strategies;
    2.5 Combination Strategies; and
    2.6 No acknowledgement

METHODOLOGY

Research Participants

Using the purposive non-probability sampling, a total of Filipino 30 participants was recruited for this research. The criteria used in selecting the participants were as follows: (1) each of the participants posted a photo and for which he/she received a compliment in the comment section from other users and (2) this same participant replied the comment including a compliment.

Research Data

The data were the compliments and compliment responses found in the photo comment section of the 30 Filipino participants. Only a pair of Cs and CRs was used. A total of thirty (30) compliments and thirty (30) compliment responses was included in the research. The first compliment seen in the picture was the data that was collected. The researchers were only getting data that were in text form, thus discarding any comments that used emojis/emoticons. These were the criteria in choosing the photo comments: (1) the first compliment with its response was considered a research data, (2) for each participant, there should only be one pair of Cs and CRs, (3) if the participant did not respond to the compliment, it was still considered as a response, and (4) if the participant responded to the compliment with only an emoji/emoticon, this was automatically not part of the data.

Research Procedure

First, the participants, who have a photo with a compliment comment and a reply, were messaged through Facebook. In order to observe ethical issues, all participants who were chosen were given consent forms indicating that they have agreed to participate in the study by giving the researchers a personal message of their approval. Also, the participants were required to express their agreement by sending back the consent form consisting of a formal letter via Facebook within ten days. Each participant needed to fill in his/her name in the consent form. Also, permission was sought that the participants' pictures are published. But for ethical purposes, the pictures of the participants were hidden. Second, once the consent was given, the researchers started to look at the comment section to find one pair of compliments and its corresponding responses. Third, the researchers saved the photo that was chosen and took a screenshot of the compliment and its response.

The 30 photos, together with the photo comments, were saved and printed. The compliments and compliment responses were then coded. In answering the first research question, the researchers analyzed what compliment strategies were used by the complimenters in the compliment section. Second, the researchers looked at what compliment response strategies were utilized by the complimentees in the compliment responses section, so as to answer the second research question.

To assure the accuracy and validity of the study's findings, an inter-rater who has a Master's degree in Applied Linguistics was hired. His task was to verify the coding done by the researchers.

RESULTS AND DISCUSSION

This study on the compliment and compliment response strategies have gathered significant results and findings in terms of what strategies were found in the Facebook photo comment section. These results are shown and explained below.

Compliment Strategies

There are two strategies in complimenting. These are (1) explicit compliments are compliments that say something positive about the addressee, and (2) implicit compliments are compliments, in which the complimentee can infer an intended compliment even if it was not explicitly uttered (Zhang, 2013).
Table 1 shows the compliment strategies used by the complimenters in the Facebook photo comment section.

As presented in Table 1, between the two compliment strategies, it is the explicit compliments that were frequently used by the complimenters. Out of the 30 compliments analyzed by the researchers, 29 of these were explicit. To fully understand why these two strategies appeared in the participant's photo comment section, the researchers have discussed the two compliment strategies below:

Explicit Compliments

Most of the compliments found in the Facebook

Table 1. Compliment Strategies

Compliment Strategies	Frequency	Percentage
Explicit Compliment	29	96.67
Implicit Compliment	1	3.33
Total	30	100

photo comment section were explicit compliments. This indicates that the participants preferred to issue a definite affirmative statement when they complimented. Most of the explicit compliments found were positive adjectives pertaining to the photo that they posted on Facebook. Explicit compliments are compliments that use positive evaluation to something related to the complimentee.

Below, are examples of explicit compliments together with the photos are provided:

Example 1

Complimenter: Gwapaha jud aning akong jumegs
(You're so beautiful, my friend.)
Complimentee: Saba ka dira uy! HAHAHHA miss you sang
(Shut up! HAHAHAH miss you sang)

In example 1, the complimenter used the adjective 'gwapa' in commenting on the photo of the complimentee. "Gwapaha jud aning akong jumegs" means that the complimentee is so beautiful. 'Jumegs' is one of the Cebuano terms for the word 'friend'. 'Gwapa' is the Cebuano term for pretty or beautiful. The complimenter used 'gwapa' to describe what she saw in the photo of the complimentee. The adjective used made it very clear in what the complimenter was trying to say towards the complimentee's picture. Here, the physical appearance and personal appearance of the participant are the subject of the compliment.

Likewise, Manes (1983, cited in Xiang, 2013) found that the topics on personal appearance and accomplishments are most frequently used in American English compliments. Holmes' (1988, cited in Xiang, 2013) data on compliments in New Zealand also displayed agreement with Manes' (1983, cited in Xiang, 2013) findings; these two topics are uniformly distributed in New Zealand's everyday interaction.

Additionally, Mojica (2002) studied on compliment-giving among Filipino college students. She found out that students tended to use a limited range of adjectives; the most common of which was pretty/nice -- used to compliment a female person for her appearance -- or to praise an item worn or owned by either a female or a male addressee. Other frequently used adjectives in compliment-giving are (ang) galing/talino '(very) smart/brilliant'; cute; (ang) guwapo '(so) handsome'; and seksi 'sexy'. The adjectives (ang) galing and (ang) husay '(very) good/well' were also used as adverbs to praise somebody else's performance. The terms bagay 'fitted'; blooming; payat 'slim'; mabait 'kind/nice'; and mataas 'high' (to refer to grades) have been frequently used.

Example 2
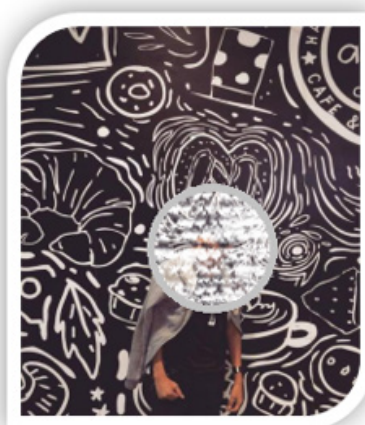
Complimenter: Ka perfect jud this handsome boy oy..
(You're so perfect, you handsome boy.)
Complimetee: Hahahahha amawa ohh
(Hahahahaha that's ridiculous)

In example 2, two adjectives were used by the complimenter in describing the complimentee. The complimenter used the adjectives "perfect" and "handsome" to compliment the complimentee. Hence, it indicates that the complimentee is indeed perfect and handsome for the complimenter. The complimenter was direct in complimenting. Thus, this is an example of an explicit compliment.

Ruhi (2001, cited in Mustapha, 2012) adds affect compliments, category which may be subsumed under personality compliments. Thus, these topics of praise make compliments readily identifiable to data collectors and analysts.

Overall, the two examples that were discussed focus on the appearance of the complimentee. The complimenters chose a direct way to compliment the

complimentee. Researchers like Holmes (1995) and Mustapha (2012) observed that most of the functions of compliments offer solidarity, as pre-acts, flatteries, greetings, rewards, and congratulations. In our data, the frequently used adjectives were 'beautiful' and 'perfect,' which are indicators of flattery in the contexts examined.

Implicit Compliments

Out of the 30 compliments gathered by the present researchers, only one belonged to the implicit compliment. Implicit compliments are those in which the value judgment is presupposed and, or implicated by the Gricean Maxims. The implicit compliment is understood as a compliment from the context, although not clearly or directly stated. According to Xiaole (2009), "the positive meaning of this type of compliment can often be inferred from what is stated, though they are not explicitly directed to the aspect that the speaker intends to praise, and the linguistic forms of the compliments are more indirect and less conventionalized for the addressee to make possible interpretations of the intended meaning." (p. 242). Ye (1995, cited in Xiang 2013) pointed out that most people will choose to give compliments in the same context when they are facing the same compliment object.

Here is an example of an implicit compliment with the photo.

Example 3

Complimenter : Mura ramag 16 te oy hahaha
                (You look like a 16-year old te)
Complimentee: Gipalay.an man gud na dzong. Pero ug I dul.it na mura sad ng 18!
                (The shot is taken from afar. If it were a close-up, I would look like an 18-year old!)

In this example, the complimenter commented that the complimentee looked like a sixteen-year-old lady. From the context, it is inferred that the complimenter was trying to tell the complimentee that she looked younger than her actual age.

Moreover, the complimenter chose to indirectly compliment the complimentee. Unlike the explicit compliments, implicit compliments do not have a positive semantic carrier. Positive semantic carriers are words that carry positive meanings. The complimenter is comparing the complimentee to someone younger and is indicating that even though the complimentee is no longer a sixteen-year-old lady, the complimentee looks like one.

Moreover, according to Jibreen (2008, p. 19), "explicitly or implicitly, 'compliments' are expressive speech acts used to express approval of the hearer for something good." Furthermore, it can be noticed that most of the time, the complimenters chose to use positive adjectives in complimenting others. All the data that were gathered were all positive since they were compliments. These prove that most of the time, complimenters choose words that carry positive values and directly stating the compliment using adjectives.

Finally, the explicit compliment is the most used strategy in complimenting since in social media, people post different pictures. It could be a group photo, a photo of their surroundings, or a 'selfie' or a photo of themselves. All of the photos that were gathered were photos of the participants. Explicit compliments were mostly used by the complimenters by using positively-valued adjectives. Implicit compliments are not often used because probably the participants find it easier to directly compliment a person rather than risking misunderstanding by using implicit compliments. This supports Mojica's (2002, cited in Zhang 2013) study, where she found out that Filipino compliments were formulaic in that a limited set of syntactic patterns and some positively-valued adjectives were frequently employed to give compliments.

Compliment Response Strategies

Table 2 displays the commonly used compliment response strategies by the complimentees found in the Facebook photo comment section. These are strategies used by the complimentees in responding to the compliments.

Table 2. Compliment Response Strategies found in the Facebook Photo Comment section.

Compliment Response Strategies	Frequency	Percentage
Face-Relationship related Response	13	43.33
Acceptance Strategies	6	43.33
Amendment Strategies	6	20.00
Non-Acceptance Strategies	5	20.00
Combination Strategies	0	16.17
No Acknowledgement	0	0
Total	30	0

Results show that the most commonly used response strategy found in Facebook photo comment section is Face-Relationship related Response. This compliment strategy was used 13 times for the participants' response compliments. This is followed by Acceptance Strategies and Amendment Strategies which both accumulated a frequency of six (6) where both landed in the 2nd rank. Third in ranking is the Non-Acceptance Strategies which gathered a frequency of five (5).

To fully understand why these four strategies appeared in the participant's photo comment section, the researchers have discussed these strategies below.

Face-Relationship related Response Strategy

This response strategy got the highest frequency. Through this strategy, the complimentees do not appear to accept, amend, or reject the compliment. Instead, they deal with the compliment within the interaction, not with the prepositional content of the compliment. Face-Relationship related Response strategy ranked the highest since all the complimentees and complimenters are friends on Facebook. Hence, they all share a relationship.

These are representative examples of Face-Relationship related Response Strategy.

Example 4

Complimenter: Sexy kaau dai
(You're sexy)
Complimentee: Hahaha liwat ni vilma
(Hahaha I got it from vilma)

In example 4, the complimenter has indicated that the complimentee is sexy. The complimentee reacted that she got her sexiness from Vilma. The complimentee responded to the communication itself and did not appear to be accepting, amending, nor rejecting the compliment; instead, the complimentee responded to the interaction that was happening between them. The complimentee and complimenter are friends on Facebook; thus, the complimenter could understand what the complimentee was intending to convey. For other people who are socially distant, "liwat ni vilma" might not make sense. However, since they are friends, the complimenter could easily comprehend what the words meant.

Example 5

Complimenter: Gwafa oi
(Beautiful)
Complimentee: **Hahaha ay saba te hahahahh**
(Hahaha be quiet hahahaha)

In example 5, the complimenter stipulated that the complimentee is 'gwafa/gwapa' or beautiful. The complimentee responded, 'ay saba te'. This could mean that the latter wanted the complimenter to be quiet about that. This could mean that she might be embarrassed and that she was modest and trying to avoid self-praise. The complimentee did not accept, amend, nor reject the compliment. Since the complimenter and complimentee are friends on Facebook, they have this connection that leads the latter to respond in the interaction that they have between the complimenter.

Additionally, the compliment responses strategies that were found in the data demonstrated that the response is dependent on the relationship of the complimentee to the complimenter. Although all participants are friends on Facebook, the level of closeness between both parties plays a significant role in responding to compliments. This does not support Yu's (2004) claim that face relationship-related response strategies are infrequently used by men and women.

Acceptance Strategies

Acceptance Strategies got six instances. Acceptance strategies are utterances that recognize the status of a preceding remark as compliment. Here are two examples of this kind of strategy.

Example 6

Complimenter: Wew pretty
Complimentee: **Wews salamat pows**
(Thank you)

In example 6, the complimenter commented that the complimentee is pretty. The complimentee responded 'wews salamat pows' which means that the complimentee is being grateful and appreciative towards the complimenter. 'Salamat' means 'thank you'. This indicates that the complimentee has noticed and accepted the compliment that was given by the complimenter. Hence, gratitude and appreciation is clearly evident in the response of the complimentee.

Example 7

Complimenter: Pagka Perfect nmn lng jud besshhh!
(You're so perfect beshhhh!)
Complimentee: **Ka perfect ba jd hahahah**
(Yes so perfect hahahaha)

In example 7, the complimenter is saying that the complimentee looks 'perfect'. The complimentee responded using the acceptance strategy. The complimentee agreed that indeed she was perfect. This indicates that 'ka perfect ba jd hahaha' is an utterance that agrees with the complimenter's compliments. Both of them share the same opinion that the complimentee is indeed perfect. It is evident that the complimentee is agreeing with the complimenter's compliment.

Amendment Strategies

This got the same number of instances with acceptance strategies. The strategies were used six times in the data gathered. This is a kind of compliment response strategy where the complimentee tries to amend the complimentary force of the compliment offered. These are the examples of amendment strategies.

Example 8
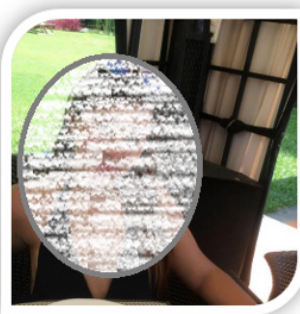
Complimenter: Sexy kat
Complimentee: **Pero mas sexy ka Char**
(But you're sexier char)

In example 8, the complimenter is stating that the complimentee is sexy. And upon hearing the remark, the complimentee responded to the compliment by redirecting the force of the compliment towards the complimenter by responding 'Pero mas sexy ka Char' which means that the latter is sexier than her. Amendment strategy was clearly evident the moment that the complimentee redirected the compliment that was given to her.

Example 10

Complimenter: Gwapaha miss oi
(You're so beautiful Miss)
Complimentee: **Sa pic ra na**
(Only in the picture)

As seen in example 10, the complimenter commented that the complimentee is beautiful. The complimentee responded that she is only beautiful in the picture. This is an example of an amendment strategy because the complimentee is downgrading the compliment that was given to her. Instead of accepting or rejecting the compliment, the complimenter chose to scale down the complimentary force of the praise. The complimentee accepts the compliment but reduces the complimentary force. She replied that indeed she is beautiful but only in the picture. The complimentee shows modesty by accepting the compliment but downgrading it.

Non-Acceptance Strategies

Non-acceptance strategies got the third in rank, gathering 5 instances in the data gathered. Non-acceptance strategies are strategies that deny, question, or joke about the content of the compliment or avoid responding directly to the praise. Here is one example of this strategy.

In example 11, the complimenter commented 'gwapo' to the complimentee. '*Gwapo*' translated to English means 'handsome'. Therefore, the complimenter sees the complimentee as having a pleasing appearance. '*Gwapo*' is considered as a compliment since it is a positive attribute that the complimenter indicated towards the complimentee. The complimentee disagreed to the compliment given. The complimentee responded '*batig nawng ana gail*'. '*Batig nawng*' translated to English is

'ugly face', which is the opposite of what the complimenter called the complimentee. The complimentee believes that he is not handsome. This is clearly a disagreement to the compliment of the complimenter where disagreement falls under non-acceptance strategies.

Example 11
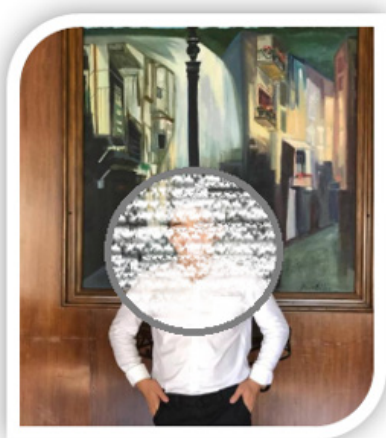
Complimenter: Gwapo
             (Handsome)
Complimentee: Hahaha bati anag nawng gail
             (hahahah that's ugly gail)

To sum up, not all the compliment response strategies were found in the data. The most used strategy is the Face Relationship-related Response strategy. This is because the complimenter and complimentee are friends on Facebook; thus, one may infer that being friends is one of the factors as to why the complimentees can respond within the interaction.

CONCLUSIONS

This study aimed to investigate on the compliment strategies and compliment response strategies in the Facebook photo comment section from the participants. The data were the compliments and compliment responses found in the photo comment section of the 30 Filipino participants.

The two strategies were utilized by the complimenters on the Facebook photo comment section. Explicit compliments acquired higher frequency than Implicit compliments. Out of the 30 compliments found on the Facebook photo comment section, 29 of those were explicit compliments. Most of the complimenters used positive adjectives in complimenting. Most compliments were based on the appearance of the participants in their photos. The most used positive adjectives were beautiful and perfect.

On the other hand, implicit compliments got one in frequency. This compliment by the complimenter did not have a positive semantic carrier in the comment. However, it can be inferred from what is stated that they are not explicitly directed to the aspect that the speaker intends to praise.

Not all six compliment response strategies were found in the research data for compliment responses. Face-relationship related response strategies were the most evident strategies used by the complimentees in the Facebook photo comment section. This is followed by Acceptance strategies and Amendment strategies. For acceptance strategies, the complimentees accepted the compliment given to them. For amendment strategies, the complimentees tried to amend the complimentary force of the compliment offered. Next is Non-acceptance strategies, which indicate that the portion of complimentees refuses to accept the compliment. Combination strategies and No acknowledgement were not evident in the present research data. This means that the complimentees did not use any combination of the compliment response strategies; hence, all of the complimentees responded to the compliments.

Lastly since there are only a few data which were analysed in this present study, the inclusion of small number of data of 30 compliments and 30 compliment responses may have contributed to the results having low frequencies and even zero frequencies for some strategies.

RECOMMENDATIONS

With the findings of the current study, these are the following recommendations:

1. Linguistics students may dive into the ocean of pragmatics and dig deep on the compliment and compliment response strategies in different social networking sites.
2. To the future researchers, who wish to study complimenting behavior in other social media platforms like twitter and Instragram, they can also determine the Cs and CRs that were used.
3. To the social media users, that they may use this study as a reference for them to understand and accommodate compliments and will serve as a guide on how they should compliment others. They can use this study to strategize the way they compliment or respond to compliments.

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Reading Comprehension Component of Grades 7 and 8 English and Filipino Textbooks

Rowanne Marie Maxilom-Mangompit, Norly R. Plasencia, Maria Russel A. Pielago, Adela M. Romeo, Charlotte Ablen, Mary Catherine Ariosa, Jennifer Inez, Fely B. Latras, and Roderick Villaflor

University of San Carlos, Philippines
Daegu Catholic University, South Korea
Velez College, Philippines
Cebu Technological University

ABSTRACT

This study aimed to analyze and evaluate the reading comprehension component in the selected Grades 7 and 8 English and Filipino textbooks used by the selected private schools in Cebu City. Content analysis and text analysis were used as research designs in evaluating the 21 textbooks used during the academic year 2012-2013 and academic year 2013-2014. Results in English textbooks revealed that among the competencies, strategies predominated among schema building, literary texts, and expository texts whereas in Grade 7 & 8 Filipino textbooks, the schema building and strategies predominated. Grade 7 & Grade 8 English Textbooks used by USC South Campus and Sacred Heart of Jesus - Hijas de Jesus met the K to 12 Guidelines for reading comprehension set by the Department of Education. Moreover, Grade 7 & Grade 8 Filipino textbooks used by St. Theresa's College only met the standards. Consequently, these textbooks are recommended to be used for Grade 7 and Grade 8 students in private schools.

Keywords: analysis, component, comprehension, content, reading, textbook

INTRODUCTION

Effective this academic year (AY) 2012-2013, the K to 12 Basic Education Curriculum (BEC) was implemented in the public schools and the private institutions as mandated by the Department of Education with the approval of Br. Armin Luistro, FSC, Department of Education Secretary ("Policy Guidelines", 2012). Teaching Grades I-X pupils and students is a very complex process. Hence, with the present call for change with regard to the use of the Mother Tongue as bridge in teaching, it is important to analyze textbooks used in the classroom in order to facilitate the learning process. Teachers and students alike must be equipped with substantial knowledge on the quality of teaching materials such as textbooks in conducting any educational practice in the classroom. Consequently, this study attempted to analyze and evaluate the reading comprehension component in the selected English and Filipino textbooks used in Grades 7 and 8 based on the K to 12 reading content standards. Hence, these textbooks that follow the guidelines set by the Department of Education would be recommended as the main references in English and Filipino to Grades 7 and 8 schools in Cebu City. This study is composed of four sections: introduction which consists of analyzing textbook contents, reading, and evaluation; method; results and discussion; and conclusions and recommendations.

Reviewed studies on content analysis focused on various subjects such as medical textbooks (Jason et al, 2010), reading (Zabihi, 2011), and Lervag & Lervag (2013). First, the textbook analysis research of Jason, et al. (2010) investigated medical textbooks to determine the quality and quantity of chronic fatigue syndrome (CFS) information. It further identified the extent of CFS coverage in terms of number of pages, the content of information contained in the pages with CFS topic, and the number of textbooks and pages that mentioned other illnesses, like multiple sclerosis and cancer, for the purpose of comparison. To determine the presence of CFS topic, the table of contents and index were first inspected. Then, specific pages were located to further identify specific topics and the number of pages they occupied. The findings showed that 48 or 40.3 % of the textbooks mentioned or included information on CFS and this topic was presented in 0.09 % of the total number of pages. All areas or specific information investigated under CFS topic were present, but with different percentages. Thus, it was found that other illnesses like cancer and diabetes were more prevalent that CFS.

Second, Zabihi (2011) also investigated the effectiveness of various excerpts from three known textbooks written for developing the reading skills. This study also focused on critical thinking. Checklist was used in analyzing the books. Results revealed that the participants' goals should be emphasized, not the tasks. Although this study also focused on reading, this study highlighted on critical thinking while the present study focused on reading comprehension only.

Corresponding author:
Rowanne Marie Maxilom-Mangompit
Email Address: rowannemarie.mangompit@ctu.edu.ph

Third, Lervag & Lervag (2013) reported a systematic meta-analytic review of studies that compared the reading comprehension including the language comprehension, decoding, and phonological awareness) in first- and second-language learners. This review included 82 studies, and 576 effect sizes were calculated for reading comprehension and underlying components. Results demonstrated that the second language learners showed a medium-sized deficit in reading comprehension and language comprehension but their phonological awareness and decoding skills only had small differences compared to the first language learners. This study showed implications that language comprehension skills could be given much attention. In this present study, the focus was on the reading comprehension in the English and Filipino textbooks.

This present study had operational definitions of the following terms. First, Reading Comprehension Component refers to the content standard. Second, Competencies refer to the schema building, strategies, literary text, and expository text. Third, Activities are tasks before, during and after reading that are assumed to be performed by the students (and/or/with the teacher) as found in the textbook.

According to Byrnes and Wasik (2009), reading comprehension pertains to a "meeting of the minds between an author and a reader" (p. 214). In so doing, comprehension includes knowing what is going on the text. In contemporary theories of reading, readers are presumed to achieve understanding through mentally representing text at five levels of analysis as pointed out by Grasessaer et al, 1997 in Byrnes and Wasik, 2009). These are the five levels of analysis: 1) *surface-code level* where readers temporarily store a verbatim trace of segments of text, 2) *textbase level* where readers represent the content of text in a stripped-down format which preserves meaning, 3) *situation model* which refers to the people, spatial setting, actions, and events" of a mental microworld which is inferentially constructed by interactions between the explicit text and background world knowledge, 4) *communication level*, where a reader represents the author's communicative intent, and 5) *text-genre level* which reflects a reader's ability to classify texts into various types such as newspaper article, expository text, fiction, etc. With these five levels, achieving a higher-level understanding of text is possible. However, some of these comprehension skills were evident in the newly-made K to 12 Curriculum Guide prepared by Ocampo (2012).

Furthermore, evaluation is synonymous with assessment as stated by Swanepoel (2010). It generates knowledge which leads to a conclusion concerning

Competencies Matrix for Grade 7 & 8 English and Filipino

Content Standard		Grade 7	Grade 8
Reading Comprehension	Schema Building	Use predictive and anticipatory devices or tasks to activate prior knowledge concerning the topic of reading or viewing selection.	Organize prior knowledge concerning the topic of reading or viewing selection using a variety of graphic organizers.
	Strategies	Distinguish between and among literal, inferential, and applied information presented in a reading or viewing selection and the questions formed on the basis of such information.	Respond to information from a reading or view-ing selection through the use of oral or written short response formats and differentiated group performance tasks.
	Literary Texts	Establish the relevance and unity of the elements of a text vis-à-vis its intended purpose and production milieu.	Identify dominant literary devices and figures of speech that add color and heighten meaning in the reading or viewing selection.
	Expository Texts	Establish the validity and unity of the details of a text vis-à-vis its intended purpose and production milieu.	Identify dominant writing or filming techniques that add color to and heighten meaning of the reading or viewing selection.

Figure 1. Competencies Matrix for Grades 7-8 English

Pamantayang Pangnilalaman	Batayang Kakayahan	Baitang 7	Baitang 8
	Batayang Kakayahan	Nagagamit ang dating kaalaman at karanasan sa pag-unawa at pagpapakahulugan sa mga kaisi-pan sa teksto at akdang pampan-itikan	Napapaunlad ang sariling kakayahang umunawa sa binasang akda sa pamamagi-tan ng pagkilala sa kahulugan ng mga idyoma, mga salitang di-lantad ang kahulugan, pag-kakahawig at pagkakaiba
		Naiisa-isa ang katangian ng relasyon ng tao sa lipunan na inilalahad sa akda	Nagpapamalas ng kakaya-hang bumasa at sumuri ng tula at epiko
		Nakapaglalahad ng mungkahing solusyon, kongklusyon, paniniwa-la, at epekto ng akda sa sarili	
		Nagpapahalaga sa mga anyong panitikan alinsunod sa isang payak ngunit malinaw na kasay-sayang pampanitikan ng Pilipinas	
Pag-unawa sa Binasa	Pamantayan Sa Pagganap	Naihahambing ang dalawang saliksik o ulat	Nailalahad ang mga patunay, halimbawa at iba't ibang damdaming nangingibabaw sa tula
		Nakapagtatanghal ng iba't ibang uri ng dula mula sa mga naba-sang akda (Hal. Reader's Theatre)	Nakapaglalahad ng sariling kongklusyon, paniniwala, pagbabago sa sarili at epekto ng akda sa sarili
		Nailalarawan ang silbing tagpuan sa isang akda	Nakapagpapatunay na ang mga pangyayari sa akda ay maaaring mangyari sa tunay na buhay
		Nailalarawan ang mga angking katangian ng mga tauhan sa isang kuwento	Nakapagbibigay hinuha/ kahulugan sa mga matalinha-gang pahayag
		Nahihinuha ang paksang teksto sa tulong ng pamagat, pangunah-ing kaisipan, simula o wakas	Nagbibigay ng mungkahi, sar-iling pananaw at paghaham-bing ng sariling karanasan sa nabasang akda

(*Source: Dr. Dina Ocampo, LAT Convenor version as of January 31, 2012 formatted by Dr. Pado and Villaneza*)
(** See Appendix for the English translation by Mr. Roderick Villaflor.)

**Figure 2. K to 12 Baitang 7-8

the worth, merit or significance of the object under investigation as pointed out by Scriven (2003 in Swanepoel, 2010). Approaches to assessment or evaluation of textbook quality can also be considered. Evaluating textbooks could be done by determining whether the learning outcomes have been attained by learners who use the textbook & the textbook has the characteristics which make it suitable to guide learners in attaining the outcomes. In this present study, the second approach was more relevant since the competencies in textbooks were evaluated whether the learning outcomes of the K to12 curriculum guide concerning the competencies in the mother tongue would be attained. To provide empirical studies on the framework and method of textbook evaluation, Swanepoel (2010) and Lawrence (2011) determined the most appropriate method or instrument to be used in evaluating the science education textbooks and the most scientifically justifiable approach to follow in developing an appropriate instrument to guide the evaluation process. Through qualitative-quantitative method and personal interviews with the teachers, results revealed that the contents of the textbooks were logically organized. Hence, textbooks may support teachers and curriculum implementation. In addition, Lawrence (2011) evaluated and enriched the two areas of literature such as the lack of a detailed systematic framework in evaluating curriculum fitness and a shortage of post-use evaluation of empirical studies in the literature. Using a checklist as an evaluation instrument and structured interviews with two in-service NSS English language subject coordinators, the result of this study demonstrated the strengths and weaknesses of the textbooks. Overall, the theories relevant in this present study are the following: reading and its models, reading comprehension, comprehension skills, models of the comprehension process, K to 12 Guidelines for the content standards of reading, and evaluation of textbooks.

Moreover, Mukundan & Kalajahi (2013) evaluated the general attributes of the textbooks and to evaluate the learning-teaching content. 944 male and female English teachers evaluated the English books using a valid and reliable checklist. Concerning the attributes and learning-teaching content of the textbooks, results showed that Year 1 to Year 6 teachers reported that the current textbooks are 'highly useful' to the students while Form 1 to Form 5 teachers contended that the school books are only 'moderately useful'. However, only the English textbooks were evaluated in this study unlike the present study which included the Filipino textbooks. To synthesize, with the newly-revised Basic Education in 2012, only few studies on textbooks were dealt with to fill in gaps of the existing curriculum guides for the improvement of the curriculum. With this gap, the present study aimed to contribute to the improvement of the educational system in the Basic education through examining textbooks used in both grades 7 and 8 in English and Filipino subjects.

Consequently, this study aimed to analyze and evaluate the reading comprehension component in the selected English and Filipino textbooks used in Grades 7 and 8 based on the K to 12 reading content standards and to recommend textbooks as the main references in English and Filipino to Grades 7 and 8 schools in Cebu City. Through this study, books that meet the criteria in the competencies would be recommended to schools. Specifically, this study aimed to answer the following questions: (1.) What competencies in the reading comprehension component are reflected in the activities of the selected textbooks for Grades 7 & 8?, (2.) Do these competencies in the selected textbooks match with the competencies matrix (content standards) for Grades 7 & 8?, and (3.) Which textbooks meet the competencies (content standards)?

METHODOLOGY

Research Design.

This study used the content analysis method since the selected English and Filipino reading textbooks in Grades 7 and 8 of the selected schools in Cebu City were analyzed and evaluated based on the competencies in the K to 12 Curriculum Guide, especially on reading comprehension competencies. As a research method, content analysis represents a systematic and objective means of describing and quantifying phenomena (Downe-Wamboldt, 1992; Schreier, 2012 cited by Elo et al., 2014). In addition, personal interviews with the DepEd supervisors and language coordinators were also done to demonstrate triangulation in the gathering of data aside from the textbooks as sources of data in analyzing the reading comprehension components of the chosen textbooks in English and Filipino subjects.

Research Environment. This study was conducted in Cebu City. The following schools were the venues of this study: Colegio dela Inmaculada Concepcion, Sacred Heart School-Hijas de Jesus, St. Theresa's College, University of San Jose-Recoletos, University of San Carlos-North Campus, University of San Carlos-South Campus. The selection of schools was done using the purposive sampling. Only the private learning institutions were selected because usually these schools allowed their students to purchase textbooks they prescribed based on the compliance of the Department of Education in choosing textbooks. It was then crucial to select textbooks for the students.

These were the criteria in selecting the schools. These were PAASCU accredited schools with Level II and Level III status. These schools are located in Cebu City and are administered by priests and nuns. These are private schools offering with basic education program.

Research Data and Sources. The 21 textbooks were the data which were analyzed and evaluated in terms of the reading skills as stipulated in the books based on the reading competencies in the K to 12 Guidelines. Textbooks in Filipino and English used in Grade 7 and Grade 8 from each school were used in the analysis and evaluation. These textbooks were locally published and were K to 12 compliant as shown in the front cover pages of the books. The publishers were Vibal, Rex Book Store, FNB, Phoenix, Big Start Don Bosco Press, St. Bernadette Publishing House, Jo-es Publishing and EMI Innovative Education Materials Inc.

Research Instruments. Since this study used a content analysis, the basic instrument was the checklist (coding sheet). Personal interviews with the supervisors and professors teaching reading were also considered as instruments in gathering the data.

Research Procedure. These are the following steps in the gathering of data. First, the researchers set a meeting to conceptualize the research problem and the parts of the proposal. Second, the researchers secured copies of the K to 12 Curriculum Guide in Filipino and English from the Department of Education, Cebu City Division. Third, they set an appointment with the statistician for the formulation of the research problem and the statistical tool used in the study. Fourth, they set another meeting for the organization of the theoretical background. Fifth, the activities of the textbooks were coded and analyzed by the researchers and the research assistants. Sixth, series of sessions were set among the researchers and assistants to resolve the coding disagreements. Seventh, the coordinators in English and Filipino of the Department of Education Cebu City Division [i.e., Abayon (2013) and Tangente (2013)], two instructors from the University of San Carlos South Campus and USC North Campus (i.e., Lisondra (2013), Filipino instructor and Sumabal (2013), respectively) and one Grade 7 and 8 English secondary teacher from public school (Cabunillas, 2014) in Cebu to validate the results.

Treatment of Data. The data were analyzed based on the list of competencies in reading provided by Department of Education and taken from the Internet to validate the authenticity of the document. Univariate Anova through SPSS was used as a statistical tool in the analysis. In coding and analysis, K to 12 Curriculum Guide was the main framework of analysis. The units of analysis include questions, activities, and all contents of the textbooks containing reading comprehension.

Competencies Rank	Textbooks (Grade 7 & 8)						Mean
	A	B	C	D	E	F	
Schema 2 Building	41	98	62	11.5	102	51	60.9167
Strategies 1	53.50	74	59	112.50	169.50	170	106.4167
Literary 3 Texts	44	72	20	37.50	105	42.5	53.50
Expository 4 Texts	.05	49	15	15.5	19.50	29.50	21.4250

Legend	Name of Schools
A	Colegio dela Inmaculada Concepcion
B	Sacred Heart School-Hijas de Jesus
C	University of San Carlos-North Campus1
D	St. Theresa's College/University of San Jose Recoletos
E	University of San Carlos-South Campus
F	University of San Carlos-North Campus2

Table 2. Reading Competencies in Grade 7 & 8 English Textbooks and Content Standards

Competencies Value	Schools Interpretation						Mean P
	A	B	C	D	E	F	
Schema .000 Building significant	41	98	62	11.5	102	51	60.9167
Strategies .000 Significant	53.50	74	59	112.50	169.50	170	106.4167
Literary .000 Texts significant	44	72	20	37.50	105	42.5	53.50
Expository .000 significat Texts	.05	49	15	15.5	19.50	29.50	21.4250

Lastly, the inter-rater reliability was also established through discussion with the pair of researchers to reach the consensus without the use of percentage.

RESULTS AND DISCUSSION

This section presents the results and the corresponding discussion of the expected reading comprehension skills evident in the Grade 7 and Grade 8 English and Filipino textbooks. Also, this section shows which of the analyzed textbooks matched with the standards.

Table 1 presents the reading competencies in the Grade 7 & Grade 8 English Textbooks. The results reveal that strategies ranked 1st among the criteria in evaluating the textbooks. Among the six textbooks, three textbooks used various strategies. This result implies that most of the textbooks used contain different reading strategies to improve the students' reading skills and to facilitate these students to comprehend and apply their reading skills after reading the texts. This finding supports Zacarron et al. (2017) that readers are expected to have highest exposure to reading strategies.

Some of these strategies that were based on the consensus and interviews with Abayon (2013, personal communication) and Sumabal (2013, personal communication) include any reading activity, skimming, vocabulary activity before the text three or more questions to check Comprehension per se even if there is one question about a literary element, collage, etc.

In addition, three textbooks were able to use various activities to activate the students' prior knowledge. This implies that before reading the text, students should have a background knowledge of what they would be reading. An (2013) mentioned that efficient comprehension requires the ability to relate the textual material to one's own knowledge. However, only few textbooks contained competencies needed for literary and expository texts. This could be attributed to the few activities in the textbooks and the authors of the textbooks focused more on the schema building and strategies more.

According to Kraemer (2012), students who are exposed to varied literary texts through read aloud demonstrated improvement in general language ability, vocabulary acquisition, and comprehension. Thus, competencies related to expository texts should still need improvement.

Table 2 presents the reading comprehension skills such as the schema building, reading comprehension, and application (i.e. role play, theater, etc.). Results imply that learning is evident. In fact, language and culture are interrelated. Therefore, the textbooks follow the K to 12 Curriculum Guide concerning reading comprehension component. Zacarron et al.'s (2017) results also shared the same reading strategies with the present study.

Table 3 demonstrates the reading competencies in the Grade 7 and Grade 8 textbooks which match the standards. For the schematic building, strategies, only the textbooks used by School B met the standards. As reported by Elleman & Oslund (2019, p. 5), "effective knowledge and

Table 3. Reading Competencies as reflected in the activities of Grades 7 & 8 English Textbooks

Competencies	Schools					Mean	Rank
	A	B	C	D	E		
1a.	79	41	30.5	41.5	16.5	39.83	1
1b.	12	37.5	48.25	19.5	16.75	30.375	2
1c.	29	40	12.75	13	0.5	18	5
1d.	7	9	9.25	8.5	0	7.1667	9
2a.	1	13	8.25	8	6.7	7.5417	8
2b.	3	48	29.5	17.5	5.25	22.2917	3
2c.	2	14	16	25.5	8.25	13.625	7
2d.	19	30	12.25	27	5.75	17.7083	6
2e.	16	44.5	13.5	26	5.5	19.8333	4

Legend	Name of Schools
A	Colegio dela Inmaculada Concepcion
B	Sacred Heart School-Hijas de Jesus/St. Theresa's College/University of San Jose-Recoletos
C	University of San Carlos-North Campus
D	University of San Carlos-South Campus1
E	University of San Carlos-South Campus2

Table 4. Reading Competencies in Grades 7 & 8 Filipino Textbooks and Content Standards

Competencies	School					Mean	P Value
	A	B	C	D	E		
1a. (significant)	79	41	30.5	41.5	16.5	39.83	0.044
1b. (not signifincat)	12	37.5	48.25	19.5	16.75	30.375	0.212
1c. (not significant)	29	40	12.75	13	0.5	18	0.655
1d. (not significant)	7	9	9.25	8.5	0	7.1667	0.946
2a. (not significant)	1	13	8.25	8	6.7	7.5417	0.589
2b. (not significant)	3	48	29.5	17.5	6.25	22.2917	0.194
2c. (not significant)	2	14	16	25.5	8.25	13.625	0.420
2d. (not significant)	19	30	12.25	27	5.75	17.7083	0.294
2e. (significant)	16	44.5	13.5	26	5.5	19.8333	0.036

integrate it with the information in the text, self-generated elaborations, graphic organizers that connect concepts to one another, and text clues (e.g., Elbro & BuchIversen, 2013; Kendeou et al., 2016 in Ellen & Oslund, 2019).

Besides, these textbooks were well-organized and the activities really facilitate students' ability to comprehend and apply what they learned from reading the various texts. In general, the textbooks used by Schools B, D, and E highly met the standards in most of the reading competencies. The results imply that the authors of these textbooks really followed the K to 12 guidelines set by the Department of Education, specifically on the reading comprehension components.

However, the literary and expository texts of these textbooks did not meet the standards because there were only few activities in the textbooks that highlight these two content standards. Overall, there is a significant difference in the reading skills that matched with the standards of reading competencies set by the Department of Education, specifically on the schema building, strategies, literary, and expository.

Table 4 demonstrates that the textbooks titled "Pluma 1 and Pluma 2" met the standards since these textbooks are comprehensive and complete. Concerning competencies, it consists of more activities for schema building, various strategies, literary and expository texts. Elleman & Oslund (2019) concluded that the early and sustained focus on developing background knowledge, vocabulary, inference, as well as the comprehension monitoring skills is necessary to improve reading comprehension across grade levels.

This result was validated through the personal interview with USC Filipino Coordinator Mrs. Lisondra (2013, personal communication). She reported that during the AY2013-2014, USC South Campus already used "Pluma 1 and 2" from "Maragtas 1 and 2" textbooks because they found that these textbooks meet the criteria. In so doing, the Department of Education is constantly revising the K to 12 Curriculum and is conducting training for teachers.

CONCLUSIONS AND RECOMMENDATIONS

Based on the findings, these are the following conclusions: (i) Strategies and schema building

predominated because these are negotiable and the teachers will have the freedom to explore the topics deeper through various activities in Filipino textbooks; (ii) Competencies are evident but vary in terms of emphasis; (iii) Not all textbooks match the standards, however, there are some textbooks that are able to surpass the standard.

Based on the conclusions, these are the following recommendations. First, the textbooks that match with the standards based on K to 12 Curriculum Guide should be used. Second, grades 7 & 8 Faculty members can also write textbooks based on their students' needs. Third, the authors of the textbooks should add more activities to enhance the competencies of the students in relation to literary and expository texts. Fourth, authors of the English and Filipino textbooks for Grade 7 & 8 could add parts of the textbooks to facilitate learning. Fifth, the K to 12 Curriculum Guide focusing on the reading comprehension should be enhanced, modified, and validated from time to time. Sixth, the teachers of Grade 7 & Grade 8 should be resourceful in finding activities that are helpful in reaching the maximum potential of students in reading. Seventh, more researchers are needed in evaluating the other domains. Eighth, there should be another study on whether the new textbooks published in 2013 have also followed the revised K to 12 Content Standards not only for Grades 7 and 8 but also for 9, 10, 11, 12.

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CTU Student Journalists' Training Needs Report: Basis for the Formulation of Training Program

Rowanne Marie Maxilom-Mangompit

Cebu Technological University

ABSTRACT

This study assessed the training needs of the 25 selected student journalists who responded to the self-administered survey questionnaires using the purposive sampling technique. Editors-in-chief of the main and external campuses were also interviewed to validate the results of the questionnaires. As perceived by the respondents, results showed that leadership and management, editorial writing, editing and proofreading, and video taking were highly needed. Results demonstrated that student journalists prefer to cover events that they are concerned with student welfare and the law and governance which are evident in the dominant activities of the campuses. However, some events that were rarely represented by these concerned students involved research and development, production, and gender and development activities. The results of this study served as one of the bases in crafting the training program of the aforementioned student journalists. This study then recommended the following training program. There is a need to craft a training program that prioritize the topics on leadership and management, editorial writing, editing and proofreading, video making, and professionalism in campus journalism. These training program was then implemented during the first semester of the AY 2020-2021 online amid the COVID-19 pandemic.

Keywords: campus journalism, journalistic skills, student journalists, capacity building

INTRODUCTION

In the Philippines, journalism has been very vibrant. However, it needs ethical and responsible journalism since it has been considered a crucial role in providing truthful and hones information to the Filipinos. In connection with the dynamism and vibrancy of journalism, the schools and universities in the Philippines also provide opportunities for students to hone their skills in journalistic writing and values in writing with ethics and responsibility. These values and skills could also help the student journalists become responsible and truthful leaders of the nation and contribute to the nation building and development.

Campus journalism is essential because it serves as a conduit between schools and higher education institutions and the general public. The practice also keeps both internal and external stakeholders informed on the events, achievements, plans and general updates on the life of the learning institution and its immediate environment. For a university, the many platforms used by campus jounalists for its audiences allow wider dissemination of its achievements and best practices. The reportage ranges from its core functions in instruction, research and development, community extension to actual production of goods and services and general welfare of students.

In CTU, campus journalism has been part of the university's activities to document essential and noteworthy events of the university involving the core functions such as instruction, research and development, community extension and production including the other areas necessary in accreditations and World Ranking accrediting bodies. However, there have been years when the student journalists were not given much attention, especially on the lack of capacity-building activities such as training-workshops to hone their skills in journalistic writing.

In addition, the presence of digital media such as video production, editing and broadcasting have not been explored much by these student journalists. With these reasons, it is very important to determine their needed skills in order to come up with relevant training programs that boost their confidence in writing quality articles. Hence, these written articles by the students would be published in the CTU website and be used as supporting documents for QS ranking and AACCUP.

It is in dire need to therefore conduct an assessment of the training needs of the CTU student journalists' needs to boost and enhance their skills in journalistic writing and other relevant needs that help them become ethical, responsible and professional student journalists. As stated in the Campus Journalism Act of 1991 ("RA 7079", 2020).

It is the declared policy of the State to uphold and protect the freedom of the press even at the campus level and promote the development and growth of campus journalism as a means of strengthening ethical values, encouraging critical and creative thinking, and developing moral character and personal discipline of the Filipino youth". ("RA 7079", 2020).

It is also stated in RA 7079 Section 2 that the "State shall undertake various programs and projects aimed at improving the journalistic skills of students concerned and promoting responsible and free journalism. ("RA 7079", 2020). Hence, this present study supports the argument of the said policy.

Corresponding author:
Rowanne Marie Maxilom-Mangompit
Email Address: rowannemarie.mangompit@ctu.edu.ph

This study used the categories on the adaptive expertise, nontechnical and technical expertise (Compe, 2017). The adaptive expertise of Hatano [cited in Carpenter, 2009)] include the following based on the job ads such as outside knowledge area, creativity, independent thought, leadership, critical thinking skills, problem-solving, ability t o learn, ability to engage community, multiple languages, ability to address social problems, and openness to diverse ideas. However, the adaptive expertise emphasized in the present study was on leadership, time management and conflict management.

For the nontechnical expertise (Carpenter, 2009), these are the skills involved: solid writing skills, working under a deadline, editing copy, teamwork skills, communication skills, AP style and grammar, researching, news judgment, multi-platform writing, writing summary content, client relations, multimedia writing and interviewing skills. On the contrary, this present study modified the list of the nontechnical skills.

Lastly, the technical skills were as follows: HTML/CSS, posting of content, image editing, blogging, video editing, content management system, animation, social media, audio editing, word processor, Excel, search engine optimization, tracking page views, computer programming, podcasting, video shooting, web-editing software, graphics program, photo shooting, database management, web design, slideshow editing, and coldfusion (Carpenter, 2009).

In sum, these expertise whether adaptive, nontechnical and technical expertise were the basis in analyzing the training needs of the student journalists understudy. Yet, there were modifications made according to the relevant skills needed and observed in the context of the CTU campus journalism practices.

There have been studies on campus journalism that dealt with the competencies and skills in writing that can be honed through inclusion of these topics in teaching journalistic writing. With these skills, students could be guided thoroughly with workshops.

Paglinawan (2010), Anderson (2011), Brown & Collins (2010) and Babista, 2009) emphasized the competencies and skills. First, a study assessed the competencies of the students in journalism, editorial, feature, sports news, and headline writing to design a training manual in addressing the issues on competence of students (Paglinawan, 2010). Communicative Competence of Canale and Swain was used as a framework of this study (Paglinawan, 2010). Using the research and development design, the elicitation technique was used in gathering the timed 300-word news articles written by the Bachelor of Arts in Communication students. The types of writing involved the headline, news, editorial, feature, and sports writing. Results of this study demonstrated that a training on journalistic writing is highly needed and the interest of the student journalists had to be developed.

Second, the schools of journalism also evolved in the same way with the media industry in encountering the challenges of the digital era and emphasized to revisit the programs of journalism whether it aligns with the actual practice in the media industry (Anderson, 2011).

Third, Brown & Collins (2010) also had the similar contention about the direction of the graduates. By using the national survey, researchers interviewed the newspaper and television news staff concerning the skills they perceived as the most important for job applicants to have. Results show that news organizations want the same skills they've always sought with two additions:" (a) an awareness among reporters, photographers, producers, and copy editors of what multimedia elements might add to their stories and (b) a select few students who want to become online producers who can maximize the multimedia elements." The results of this study suggest that "educators might want to hold off abandoning the teaching of traditional, medium-specific skills for the time being, while incorporating more multimedia education into their curricula."

The fouth study on the journalism educators reflected whether they had to maximize the use of digital media technology in the classroom and teach across multiple platform while the newsroom surveys revealed that Australian and US news employers still focused the traditional journalism skills (Callaghan & Memmanus (2010). This paper investigated whether journalism schools produced graduates with skills aligned with the needs of the industry. Results also showed that US employers still preferred the traditional journalism skills, namely, good writing, spelling, grammar and punctuation, general knowledge and understanding of ethics. The employers also wanted graduates who embody the journalistic 'ideal' which includes being curious, hard working, driven and passionate in writing and reporting.

Aside from the competencies needed in journalism, grammaticality of the write-ups was also essential in writing. The student publications of the Catholic high schools in Bangued, Abra were analyzed (Luna, 2014). By looking into the recurring patterns, predominant features and errors evident in the news, editorials, features, literary and sports pages of the schools papers from the 11 student publications, the results showed that the news cover school and community events. For editorials focus on issues concerning the students while the literary pages emphasized the adolescent student life. Among the pages that need improvement were the features. Hence, more training is needed to improve the students' writing skills.

Finally, a study also determined and analyzed the effectiveness of the intellectual pyramiding model which served as an instructional strategy in teaching campus journalism skills (Babista, 2009) The campus journalism skills examined for three consecutive academic years (2007-2009) to determine the effectiveness involved desktop publishing, editorial writing, newswriting, development communication, feature writing, sports writing, layouting, graphics, and literary writing. For the methodology, this study used the qualitative research design and discourse analysis approach by collecting the students' submitted work coming from the topics previously assigned to them. Forty-nine student journalists who passed the qualifying exams from the Kingfisher, an official publication of the Southern Luzon State University in Lucban, Main Campus participated in this study and their writing outputs were measured by the monitoring devices.

As shown in the results, this study suggests that the intellectual pyramiding model is an effective strategy

Table 1. Tasks in Nation Builder: CTU Main Student Journalists
N=25

Tasks	NB
Feature writer	6
Feature Editor	2
News writer	5
Photojournalist	5
Cartoonist	3
Layout Artist	2
Associate Editor in Multimedia	1
Copy Reader	1
Headline Writer	1
Literary Writer	1
Editor in Chief	3
FSJ Finance Committee Chair	1

in teaching campus journalism skills evident in the improvement of scores of the students' rated outputs across the three consecutive years. However, most of the studies focused on the teaching of students whose courses are Communication and Journalism. There was little research on the training needs of the student journalists, especially in the Philippine setting. Consequently, there is a need to conduct the training needs assessment of the Filipino student journalists to demonstrate the RA 7079 which intends to empower the campus journalists in exercising press freedom with ethical and responsible journalism when they are also equipped with the necessary skills in journalistic writing.

This study assessed the training needs of the selected student journalists who responded to the self-administered survey questionnaires. The results of this study would serve as one of the bases in the crafting of the training program of the aforementioned student journalists.

With these reviewed studies that mentioned digital media and necessary skills in journalistic writing, it is therefore needed to determine the needs of the CTU students in writing articles that would be accepted for publication in the university website to support the documents needed for accreditation, press release and information dissemination for the CTU community and public consumption.

Specifically, this study sought to answer the following questions: i) What events in the university were covered by the student journalists? and ii) as espoused by Hatano's theory on expertise, what are the training needs of the student journalists? This study would further be considered as the basis in crafting the training program for the Federation of Student Journalists (FSJ), a university-wide organization of campus writers of the Cebu Technological University.

MATERIALS AND METHODS

Research Design

This study used the descriptive research method by using the self-administered survey questionnaires distributed to the student journalists. The questionnaires were validated with the interviews with the editors-in-chief of the campuses.

Research Environment

The venue of this study was the Cebu Technological University where the student journalists were studying.

Research Respondents

The respondents of this study were the 19 students journalists from the Nation Builder, official student publication of CTU Main Campus and six student journalists from the external campuses who responded to microsoft form sent and shared in the group chat room of the Federation of Student Journalists during the enhanced community quarantine in May 2020. Specifically, there were three respondents from Naga Campus and three respondents from Carmen Campus. Purposive sampling technique was used in this study with the following criterion, that is the respondent must be a student journalist of CTU. Lastly, there were also nine editors-in-chief from the main campus and external campuses who participated in the online interviews using the microsoft forms.

Research Instruments

This study used the self-administered training needs questionnaires distributed to the student journalists from Nation Builder members and members of the Federation of Student Journalists of the Cebu Technological University using the microsoft form. Informal interviews were also done with the Editor-in-Chief of the Nation Builder to verify their training needs. To validate the survey questionnaires, interviews with the editors-in-chief were conducted using the microsoft forms.

Research Procedure

The data were gathered following these steps: First, the training needs questionnaire was made. Second, the distribution of the questionnaire was done during the strategicnplanming of the Nafion Builder student

Table 2. Events Covered
N= 18

Events	NB	EC	Total	Rank
Leadership and governance	14	6	20	1
Student welfare programs and Services	14	6	20	1
Academic affairs	12	4	16	2
Internationalization	9	4	13	3
Research and development	5	3	8	5
Performance in licensure exam	5	2	7	6
Community extension services	5	5	10	4
Faculty development	4	2	6	7
Infrastructure	4	1	5	8
Gender and development	3	2	5	8
Production	3	1	4	9

Legend: NB - Nation Builder
EC - External Campuses

journalists. Third, the microsoft form of the training needs questionnaire was modified, prepared and posted in the facebook messenger groupchat room of the Federation of Student Journalists together with the groupchat room of the advisers for dissemination. Fourth, the answered questionnaires and received responses from the microsoft form were tallied, coded, tabulated, analyzed and interpreted. Lastly the data were analyzed using the categories with modifications on the adaptive expertise, nontechnical and technical expertise (Carpenter, 2009).

Ethical Considerations

After consolidating the responses from both the training needs questionnaires distributed during the strategic planning of the Nation Builder student journalists last December 2019 and the responses taken from the microsoft forms posted in the group chat room of the Federation of Student Journalists, the consent was sought from the University Director for Student Affairs and the President of the Federation of the Student Journalists and Editor-in-chief of the Nation Builder. The tabulated data were also shown to themnfor their approval.

RESULTS AND DISCUSSION

This section presents the events covered by the student journalists and their journalistic skills needed for the crafting of the training program for the campus journalism.

Table 2 demonstrates the events covered by the student journalists in relation to leadership and governanc and student welfare programs and services which are both ranked first followed by the academic affairs and internationalization.

To validate, students from external campuses, covered most of the events related to leadership and governance (6), student welfare programs and services (5), community extension services (5), academic affairs (4), and internationalization (4).

With the data shown in Table 2, the results suggest that the student journalists focused on their coverage of events to leadership and governance and student welfare which spark their interest. Explain. However, the other events related to research and development, gender and development and production were not given much emphasis.

To validate the results, the student journalists from other campuses considered the following top 3 training needs as highly important: leadership and time management (6) as top 1, advanced news writing (5) and feature writing (5) as top 2 and layout and designs (4) and online news writing (4) as top 3 among the needed training.

Both data in Table 3.1 and Table 3.2 imply that leadership and time management are highly needed by the student journalists. The data suggest the need for adaptive expertise on the role of student journalists who would become future leaders of the country ("RA 7079", 2020). Reference 5 argued that among the nontechnical expertise involve content writing, editing, and multimedia writing. The student media group of De La Salle University "De La Salle" (2020) and the Manila Collegian Constitution of the University of the Philippines ("University of the Philippines", 2020) also highlighted in their aims to develop student journalists who are responsible and apply professionalism and ethical journalism since they would become future leaders of the nation.

To validate the results from the questionnaires, majority of the editors-in-chief consider leadership and management skills very essential in leading their staff and fellow editors. These are the following extracts from the interviews with the editors-in-chief:

Extract 1

As a student journalist, **leadership skills** is highly needed to enable to lead and motivate your team. Also, you can handle and delegate responsibilities, listen to feedback, and have the flexibility to solve problems in an ever-changing workplace in the publication (EIC7)

Table 3.1. Training Needs
N=18

Training topics	NN	NSN	N	HN
Editorial writing	0	0	7	11
Basic news writing	1	1	11	5
Advanced news writing	0	1	8	9
Feature writing	0	0	10	6
Cartoon	1	4	7	6
Basic Laws in Campus Journalism	0	1	9	7
Video Making	0	2	6	10
Broadcasting	0	1	7	9
Interviewing Techniques	0	3	6	9
Photojournalism	0	3	6	9
Leadership and Time Management Training	0	0	5	13
Literary writing vs. news writing	0	1	8	9
Investigative journalism	0	1	8	9
Conflict Management	0	2	10	6
Crisis Communication	1	1	9	8
Writing a Magazine	0	1	10	7
Editing and Proofreading	0	0	7	11
Layout and Design	0	1	8	9
Online News Writing	0	0	10	8
Ethical Use of Social Media in News	0	0	9	9

Legend: NN - no need
NSN – not so needed
N – needed
HN – highly needed

Table 3.2. Highly needed Training Needed by the Student Journalists From the Online Survey
N= 7

Training Topics	f
Editorial Writing	3
Basic News Writing	3
Advanced News Writing	5
Feature Writing	5
Cartoon	0
Basic Laws in Campus Journalism	3
Video Making	1
Broadcasting	2
Interviewing Techniques	3
Photojournalism	2
Leadership and Time Management	6
Literary Writing vs. News Writing	3
Investigative Journalism	3
Conflict Management	1
Crisis Communication	2
Writing in Magazine	3
Editing and Proofreading	3
Layout and Design	4
Online News Writing	4
Ethical Use of Social Media in News	3

Extract 2

Leadership skill is a necessary tool to create a team worth the name 'journalists'. (EIC3)

Extract 3

This is so because campus journalists are to be considered as **model students**. They possess great skills that require great responsibility in handling. (EIC1)

Extracts 1-3 demonstrate the need of the student journalists to hone their skills in leadership and management since they are considered role models and leaders of the student publications.

Other training needs include editorial writing, editing, advanced news writing, feature writing and online news writing. This result supports the contention that there is a high need of training students in journalistic writing [9]. There had to be enough and appropriate instruction, drills, training and related pedagogical intervention [9].

Extracts from the interviews also support the training needs on writing news worthy articles:

Extract 4

I think most on the **writing skills**, e.g. grammar, syntax and the likes. Also the ability to create newsworthy articles requires a need to be honed and improved. (EIC2)

Extract 5

Editorial and News Writing. For ought we know, these journalistic skills need not only accuracy but also wisdom. (EIC5)

Extract 6

Writing workshops and leadership trainings (EIC6);

Extract 7

Media Writing workshops would be another option. Because I admit that our skills in writing is not that excellent and we need to enhance it through this. (EIC4)

Further, extracts 4-6 taken from the responses of the informants highlighted the student journalists' need in writing workshops.
In addition, the student publications had to be improved that includes paper size, printing quality, choice of articles, and contents (Luna, 2014).

Moreover, student journalists in online surveys added topics for their training such as professionalism, making journalism websites, science writing, headline writing, and self-cultivation. This list is added by the competition of news writing and teambuilding indicated in the interview with the editor-in-chief similar to the activities during press conferences and workshops. This is demonstrated in the following extracts:

Extract 7

What I find note worthy is the conduct of periodic

competition that will enhance and trigger utmost performance on the application of these skills. The last time I joined a Campus Press contest, there was feed-backing before the results came out. An expert would evaluate and point out the weaknesses and strengths of the written article. It is at this avenue that skills are enhanced and polished. (EIC3)

Extract 8

For me, **team building** is one of the activities or training every journalists need because this can build a good camaraderie and improve communication skills towards others. (EIC7)

Extracts 7 and 8 provide enriching skills in cooperation and healthy competition to strengthen the relationships among student journalists.

Journalism and communication programs could consider the teaching of skills in short workshops and the teaching of theory in upper-level classes (Carpenter, 2009). Students are also encouraged to be responsible in their educational pursuit in acquiring additional knowledge that requires higher cognitive ability such as reasoning, expression in writing and decision making.

CONCLUSION AND RECOMMENDATION

Based on the findings, these are the conclusions made: First, student journalists prefer to cover events that they are concerned with student welfare and the law and governance which are evident in the dominant activities of the campuses. However, some events that were rarely represented by these concerned students involved research and development, production, and gender and development activities. Second, there is a need to craft a training program for the student journalists based on their perceived highly needed training that prioritize the topics on leadership and time management, editorial writing, editing and proofreading, video making, and professionalism in campus journalism.

Based on the conclusions, these are the following recommendations. First, students could be assigned to coordinate with the offices for the activities of the Office of Research and Development, Office of the Academic Affairs, Office of the Community Extension Services, Office of the Production and Business Affairs including the Gender and Development in order to have equal representation and documentation of the essential events in the university which can aid in the acquisition of data for the accreditations such as the Institutional Sustainability Assessment, AACCUP, PASUC, ISO, etc.

Second, this study suggests to have a training program that includes the following topics relevant to the responses of the student journalists, namely: a) Highly Needed: Leadership, Time Management, Professionalism, Editorial Writing, Editing/Proofreading; b) Needed: Basic News Writing, Online News Writing, Feature Writing, Conflict Management, and Writing a Magazine.

Third, webinars could be organized to boost the confidence and enhance the skills of the student journalists.

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Differentiated Instruction In Teaching English Literature: Enhanced Learning Packets

Richel D. Quisto

Department of Education, Soom Integrated School
Soom, Trinidad, Bohol, 6324

ABSTRACT

This study evaluated the acceptability of Differentiated Instruction (DI) in teaching English literature to Grade 10 students in Soom Integrated School, Trinidad, Bohol during the School Year 2019-2020. It identified the academic performance of the respondents in specified learning competencies in English literature and the DI's level of acceptability as perceived by the students as well as the significant relationship between the two variables. A researcher-made questionnaire was used to complete the descriptive-inferential/correlation research method.

The study revealed that there was a significant relationship between the students' academic performance and DI's perceived level of acceptability. It is recommended that an enhanced DI learning packet be applied in teaching English literature. This includes strategies like RAFT (Role, Audience, Format,Topic), flipped classroom, cubing, tune up stations, tic-tac-toe, exit cards, journal writing and jigsaw activities.

Keywords: differentiated instruction, English, literature, teaching, learning packet

INTRODUCTION

Students nowadays come to school with different learning profile, style, interest, level of readiness, cultural and economic background and a lot more. These variances and heterogeneity in the classroom setting pose a challenge on instruction and assessment not just to the teachers in the country but across the globe since the 'one size fits all' instruction can no longer cater to the diversity of students' needs.

To keep abreast with the existing diversity that teachers face today, educational experts proposed a model that seeks to address the needs of learners in context, that is, Differentiated Instruction (DI).This is an innovation of classroom elements such as the structure, management and most importantly the content thereby engaging the students along the process (Subban, 2006).

Tomlinson and Eidson posited that the concept of Differentiated Instruction was originally crafted as a response of teachers to meet the needs of diverse learners in the general education class. It presents the premise of modifying classroom elements to cater to the needs of the students. Furthermore, Tomlinson expounded the elements that can be modified were as follows: content, process, product, learning environment, and affect. First, the content deals with what is taught and how it is presented. Second, the process is the means by which students apply and learn the content. Third, the product or summative assessments would show what students have actually learned. Fourth, the learning environment, on the other hand, refers to how time, materials, and space are organized. Lastly, affect considers the affective or emotional needs of individuals (Rojo, 2013).

Because of the trend set by Differentiated Instruction, many researchers abroad had recently conducted studies about it in investigating its effectiveness as a viable solution to the problems of this classroom diversity and evaluating its contribution to high quality instruction as delivered to every individual student (Park, 2017).

However, other studies also revealed that there were limited studies on DI conducted from a student's perspective (Park, 2017). Moreover, the researcher discovered that researches on DI application in English literature were scarce whether abroad or local. Several studies conducted in the international learning institutions were focused on English language and other subjects like Mathematics, Sciences and Special Education. Few Filipino studies on DI were also focused on Filipino and Mathematics subjects (Amadio, 2014; Aranda, 2016). Finally, Robinson (2017) mentioned in her study that although DI is a household name to educators and teachers; still, its concept of application is not yet solidly presented. Similarly, researchers such as Santangelo and Tomlinson, Stodolsky and Grossman reinforced Robinson's conception by saying that teachers inconsistently applied DI in the classroom (as cited in Brevik et al., 2017).

To be at par with this global educational pacing, the Philippine Congress enacted the No Filipino Child Left Behind Act of 2010 and the Republic Act No. 10533 or the Enhanced Basic Education Act of 2013 which impelled the Department of Education (DepEd) and Higher Education Institutions (HEIs) alike to adapt the use of DI in the classroom through the initiation of Outcomes-based Education (OBE) and K to 12 program that focus on student-centered activities tapping the multiple intelligences and learning styles of learners. Even the competency guides and learner's materials were embedded with small group differentiated work and individualized

Corresponding author:
Richel D. Quisto
Email Address: richelquisto156@gmail.com

tasks to be performed by students most especially every after a literary text.

Literature, being taught along with language provides text for reference and practice for the English language (as incorporated in the Curriculum guide and Learner's Material). Teaching literature helps in promoting students' reading comprehension and critical thinking (Rohaniyah, 2012) but this contention also presented a challenge. Although, teaching literature is engaging, it demands effective and appropriate strategies for deeper understanding of the text, real life application, connection and value-integration and sufficient time for processing. In this connection, Rohaniyah (2012) exposed that small group discussion is a technique in teaching English literature that provides a context not just between students but also between students and the teacher. San Jose and Galang (2015), however, found that despite the growing differences of students, most teachers still prefer reporting as the most common method in teaching literature and most students agree that lecture is the most effective strategy in teaching literature subjects .

Thus, these findings of the scarcity of DI researches done on English literature and the challenge of using DI in the teaching of English literature that caters to students' needs motivate the researcher to further investigate the DI implementation in teaching English 10 literature topics in Soom Integrated School and on how this innovation had affected the students (Waid, 2016). This study could fill in the existing gap of scholarly researches by adding a specific study about the evaluation of the acceptability of implemented DI based on students' perceptions and academic performances in English literature. Relatively, this study supported the teachers in using more appropriate and relevant strategies to differentiate the content, process, learning environment and product in the English literature class.

The present study drew on the tenets of the implemented laws in the country and some theories abroad. The No Filipino Child Left Behind Act of 2010 and the Republic Act No. 10533 or the Enhanced Basic Education Act of 2013 are implemented in the country to make sure that every child's way of learning, interest, learning styles, need and background are considered and attended to in the classroom setting.

Also, theories of Differentiated Instruction or Differentiation, Multiple Intelligence (MI)}, and Learning Style Theories like Visual, Auditory Kinesthetic and Tactile (VAKT) served as anchors and foundations in the birth of this study.

The Philippine educational system's basic curriculum was revisited and enhanced through The No Filipino Child Left Behind Act of 2010 and the Republic Act No. 10533 or the Enhanced Basic Education Act of 2013 to adhere to its vision and mission in providing quality, equitable, culture-based education that facilitates the learning of every Filipino. With these innovations in the educational system, the Department of Education was demanded to develop its curriculum according to the standards and principles. Few of these curriculum enhancements paralleled the tenets of Differentiation: learner-centered, inclusive, constructivist, inquiry-based, collaborative, integrative, and relative to social context. Content and performance standards, together with the learning competencies were cascaded to the Teacher's Manual and Learner's Materials through these guidelines and thereby providing some DI-based activities and task into the learners (Republic Act No. 10533, 2013).

Learning Style Theories play a big role in the profiling of students in the preparation of Differentiated Instruction. These theories are premised on the ideas and principles that the student actively constructs knowledge based on prior knowledge or experience. Instruction is then based on the development of the students. It focuses on the student's readiness, interest and learning style. According to Gholami and Bagheri, among the learning style theories, VAKT Theory has gained a popular ground among educators (as cited in Charles, 2017). This theory which stands for Visual, Auditory, Kinesthetic and Tactile uses the main sensory receivers as bases or as medium on how learners process information to acquire new knowledge and skill. VAKT learning style employs practical assessment that includes asking individual learners to identify the way in which he or she learns. This theory is based on how learners learn and on what interests them the most while learning.

Worthy to mention next is Gardner's (1980s) Theory of Multiple Intelligences (MI) (as cited in Subban, 2006). This theory contended that no two individuals learn in the same way. He postulated eight intelligences that were relatively independent but were interacting cognitive capacities. The intelligences are verbal-linguistic, logical-mathematical, musical, spatial, bodily-kinesthetic, naturalistic, interpersonal, and intrapersonal and a tentative ninth one, moral intelligence. The multiple intelligences are primary tools for learning, problem-solving, and creating opportunities for all students by enriching the classroom through multiple techniques and assessment forms, develops students and brings out their strengths.

Differentiated Instruction as the prime pillar of this study highlights on the internal differentiation which focuses on the modification of content of curriculum, method of delivery and other variation to address the differences of the learners in an inclusive classroom setting. Tomlinson further expounded that DI is guided by the principle of quality curriculum, continual assessment and flexible grouping (as cited in Rasheed & Wahid, 2018).

Differentiated Instruction, according to Tomlinson, is student-centered and is used to reach and engage students based on their diverse interests, strengths, and weaknesses, and how they learn best. Furthermore, the theory is expounded with consideration on the students' differences in their readiness to learn, interest, learning styles, experiences, cultural background and life circumstances (as cited in Rojo, 2013 ; Lyles & Wu, 2016).

This research was anchored on the abovementioned theories since it capitalized on the use of different strategies that primarily involve and engage students in their learning which caters to their intelligences, learning styles, preferences and interests and tailors to their cognitive and academic level and readiness. Hence, this study basically assumed that using the strategy of differentiated tasks and activities in literature, students' collaboration and engagement in the class is improved; thus positively affecting their academic performance.

With the advent of DI in educational systems worldwide, a repertoire of studies had been conducted relative to its effectiveness as a strategy of teaching in general. Thus, the researcher had categorized these resources into sub-themes: Secondary Teachers and Administrators as Participants, Elements of Differentiated Instruction, Students' and Teachers' Perception on and Understanding of DI, Groupings and other DI Styles, Effectiveness of DI through Changes in Behavior, Academic Performances, and Drawbacks of DI.

These studies are all connected with this study since they all investigated on the effectiveness of the Differentiated Instruction in an inclusive classroom. There are positive results such as increase in the academic performance of students, attitude/motivation to school, self-confidence and reading comprehension skills. However, there were also limitations noted by other findings.

While it is true that many studies are related to this curr

ent endeavor, this study looked into a wider scope of differentiation from big groupings to small groups and even in individual task assigned to students in order to tailor fit instruction to students' needs. The variable of students' academic performances in literature class played a pivotal role and the designing of an enhanced DI learning guides as an output presented sufficient substance for this paper.

This research evaluated the acceptability of Differentiated Instruction (DI) in teaching English literature to Grade 10 students in Soom Integrated School, Trinidad, Bohol for the School Year 2019-2020 as basis for the crafted enhanced DI-based learning packets.

Specifically, this study answered the following questions:

1. After using DI, what is the students' academic performance in the following third quarter competencies in English 10 Literature:
    1.1. explaining how the elements specific to a genre contribute to the theme of a particular literary selection;
    1. 2. explaining the literary devices used;
    1. 3. expressing appreciation for sensory images used; and
    1. 4. determining key ideas, tone, and purposes of the author?

2. What is the respondents' perceived level of acceptability of DI in terms of the following elements:
    2.1. process;
    2.2. learning environment; and
    2.3. product?

3. Is there a significant relationship between the students' academic performance and their perception?

4. Based on the findings, what enhanced DI Learning Packets can be crafted?

METHODOLOGY

This research used the descriptive-inferential/ correlation. It was quantitative in nature since the students' academic performances in the learning competencies in English 10 literature were collected manually and analyzed in terms of the frequency of students getting the grades based of the scale and descriptive category designated by the teacher.

Also, the respondents are asked to fill-out the researcher-made survey questionnaires about their perception of the DI utilized by the teacher after reading a literary text as prescribed in the Teacher's Guide and Learner's Manual. Similarly, the ratings that the students gave in each DI element were also collected and analyzed by using the Mean and the Standard Deviation measurements and were given descriptions on their acceptability.

Finally, the two variables were statistically treated using the Data Analysis feature in Microsoft Excel.

Research Environment

This research was conducted at Soom Integrated School, Soom, Trinidad, Bohol. The school is founded last June 2010 as is the smallest complete secondary school in the District of Trinidad. It has 389 enrolled students.

Research Participants

The participants of this research who answered the survey questionnaire were 79 Grade 10 students of Soom Integrated School in the school year 2019-2020. They were chosen using non-probability sampling which is the convenience sampling. Since the researcher is handling English 10, all Grade 10 students were included in the study as participants.

The instrument used in the study was a researcher-made tool to collect the perception level of students of the Differentiated Instruction containing the elements of DI. It had been pilot tested to another grade level in the same school to check the students' understanding of the items and the face validity of the material. The survey was further categorized into the the elements of differentiation, namely: process, learning environment/ affect, and product.

Data-gathering Procedure

The collection of data followed certain steps. First, the researcher wrote a formal letter asking for permission from the Office of the Principal to conduct a study in Soom

Table 1. Distribution of sample student respondents

STUDENTS	n	%
Grade 7-12	389	100
Grade 10	79	20.31

N=389

Integrated School. Second, another letter was sent to the pilot testing respondents and actual research participants.

The researcher-made survey on the Level of Perceived Acceptability of the DI was pilot tested to selected Grade 9 students of the same school to determine whether the items were comprehensible to the respondents and to prove what the form purports to measure.

Then, the implementation of DI-based instructional plan constructed by the teacher following some prescribed activities in the Teacher's Guide and Learner's Manual followed. The grades of the students during the evaluation performance based on the specified competencies taught were collected. These grades ranged from 0 to100 per cent and were measured using rubrics for differentiated activities. The data gathered were analyzed using the weighted average of students falling into the descriptive categories prepared by the teacher such as excellent, very good, good and lastly, poor.

Then the students answered the researcher-made survey questionnaire on their perception of their experience with DI. They rated the elements and the sub elements as 5 being most acceptable and 1 as least acceptable. The data collected were treated using the mean and the standard deviation. Subsequently, the results were also given descriptions according to their acceptability.
Finally, a significant difference between the grades of the students in the literature competencies and their perception of DI was extracted using the data analysis feature in Microsoft excel.

Treatment of the Data

To determine the significant relationship between the respondents' perceived level of acceptability of DI and their academic performance in English Literature the Pearson Product-Moment Coefficient of Correlation was used. The students' grades for each performance of the desired learning competency were collected as well as the students' perceived level rating for each element of DI. The data were then analyzed and compared using the statistical feature on Microsoft excel.

Scoring Procedure

In terms of the survey questionnaire for the students' perceptions on the level of acceptability of DI, each response had an equivalent one point. Each element

has statements that will be assessed by students using the 5 point scale of frequency/ quality: 5   - most acceptable 4 – highly acceptable, 3 – acceptable, 2   - less acceptable and 1   – least acceptable. Each scale has the same designated point for scoring.

In terms of the students' academic performance per competency, the researcher used rubrics based on the specific activity or performance assigned to a group of students or an individual student. The rubrics were teacher-made ones deemed best to measure the performances.
For the first learning competency which was explaining how the elements specific to a genre contribute to the theme of a particular literary selection, the class was divided into four heterogeneous groups. Each group had a different element to analyze and report at the end of the session. The presentation of output was based on their preferred mode of delivery decided by the group as long as the criteria in the rubric are met. See Appendix A for the rubric.

The second learning competency in English 10 Literature was explaining the literary devices used. The class was divided into two big groups. The group had the same output—to come up with an illustration of a tree with leaves having samples of figurative statements (2 samples per figure of speech). Each member had a specific role to do like: book/ note scanners, messengers, writers, illustrators, board designers, proof readers, mentors, reporters (to explain the literary devices used in the sentences). See Appendix B for the rubric of group activity.

The third learning competency was expressing appreciation for sensory images used. The students were asked to choose a talent or an intelligence they preferred for the performance of expressing appreciation for sensory images. They were limited to Visual (Poster), Verbal (Talk Show), Kinesthetic (Dance Interpretation) and Musical (Jazz Chant). See Appendix C for the rubric of Small Group Differentiated Work (SGDW): MI-Based Activity.

Lastly, the fourth learning competency was determining tone, mood, technique, and purpose of the author. The students were asked to choose a specific text to analyze its tone, mood, technique and purpose in an essay form. See Appendix D for the individual text analysis.

RESULTS AND DISCUSSION

This section presents the data gathered from

Table 2. Students' academic performance in small group differentiated works (SGDW): explaining how the elements specific to a genre contribute to the theme of a particular literary selection.

Descriptions	Weighted Ave.
Excellent (95-100)	2.5
Very Good (90-94)	19.25
Good (80-89)	38.75
Poor (below 80)	18.50
Total	79

Table 3. Students' academic performance in big grouping(board work) activity: explaining the literary devices used.

Descriptions	Weighted Ave.
Excellent (95-100)	8.50
Very Good (90-94)	17.50
Good (80-89)	36.50
Poor (below 80)	16.50
Total	79

Table 4. Students' academic performance in small group differentiated work (SGDW) MI-based activity: expressing appreciation for sensory images   used.

Descriptions	Weighted Ave.
Excellent (95-100)	11.67
Very Good (90-94)	21.33
Good (80-89)	32
Poor (below 80)	14
Total	79

the academic performance of the respondents in the English literature lessons as well as from the conduct of survey questionnaires on the respondents' perception on Differentiated Instruction's level of acceptability of Soom Integrated School. Along with the consolidation of statistics, this part also showcases the analysis and interpretation of the results.

Academic performance of respondents in English literature according to learning competencies

Table 2 shows the frequency of students attaining a specific score per criteria in Small Group Differentiated Works (SGDW). Here, the students are divided into four heterogeneous groups. Each group has a different element to analyse and report at the end of the session. The presentation of output is based on their preferred mode of delivery as long as the criteria in the rubric are met.

Students get the highest weighted average of 38.75 under the description of Good. This comprises the students' performance in the criteria of content, delivery, creativity and cooperation in the group. This is seconded by 19.25 of Very Good and closely followed by 18.50 weighted average of Poor. This further implies that the students' performance in the differentiated activity fell into the good level of student achievement. According to Moyer (2011), grouping students according to their interest allow for an effective learning environment and showed academic growth.

Table 3 presents the frequency of students getting a specific range of scores in the big group performance

with the criteria of content and role delivery. This result implies that the students once again performed in an average level based on the range set by the teacher in the rubric. The changes of seating arrangement which enables the students to roam around freely, interact with members and complete the task as a group provide a conducive place for students thus affecting their performance (Wannarka and Ruhl, 2008).

The third performance was another SGDW of the assigned learning competency. The activity was prescribed in the same English 10 Learner's Material but modified by the teacher in terms of grouping and specific task to be done by the learners. The activity tapped four intelligences of students. Each group was to follow the instructions set by the teacher for a specific performance according to the talent or intelligence.

Table 4 shows that 32 per cent of the students performed good in the DI-based activity. This result has a favorable inclination towards better scores of students in the said activity. The incorporation on students' intelligences enhances the students' engagement in the class and boosting their creativity in the presentation of output (Gardner as cited in Subban, 2006). Additionally, the small group activity led by able peers and facilitated by the teacher helped in the increased motivation and performance in the class (Vygotsky in Waid, 2016 and Subban, 2006).

Table 5 illustrates the frequency of students getting the range of scores determined by the teacher. The lesser number of students getting the Excellent grade in the

Table 5. Students' academic performance in individualized text analysis activity: determining tone, mood, technique, and purpose of the author.

Descriptions	Weighted Ave.
Excellent (95-100)	5
Very Good (90-94)	28.33
Good (80-89)	21.33
Poor (below 80)	24.33
Total	79

Table 6. Students' perception on the acceptability of differentiated instruction: process.

DI Element: Process The teacher….	Mean	Std. Dev.	Description
A.1. divides the class into different groups/assigns tasks according to talents, gender, interest, and learning styles.	3.84	1.2717	Highly Acceptable
A.2. assigns tasks based on student's choice.	3.49	1.1421	Highly Acceptable
A.3. uses varied and engaging activities in class.	3.73	0.9426	Highly Acceptable
A.4. varies the time for students to complete their task.	3.95	0.9213	Highly Acceptable
A.5. monitors individual or group progress on the task given by moving around and attending to the students' needs.	3.87	1.1308	Highly Acceptable
Average	3.78		Highly Acceptable

Legend:
   (4.21 - 5.00 Most Acceptable
    3.41 - 4.20 Highly Acceptable
   2.61 - 3.40 Acceptable
   1.81 - 2.60 Less Acceptable
   1.00 - 1.80 Least Acceptable

criterion of content jives approximately with the number of honor students. This is parallel with Kaweera, Yawiloeng and Tachon's (2019) which states that high proficient students particularly favor individual activity, specifically in writing.

On the other hand, the dominance of Very Good in the weighted average among other levels illustrates a favorable impact brought about by Differentiated Instruction to the students' performance in class as studied by educators (Leonardo et al, 2015; Aranda & Zamora, 2016; Kiley, 2011).

Students' Perceptions on the Level of Acceptability of Differentiated Instruction.

This part comprises the presentation of DI's perceived level of acceptability by the students according to the elements of Differentiated Instruction.

Table 6 presents the respondents' perception on the teacher's differentiation in the process in terms of dividing the class into small groups according to talents, gender, interests and learning styles as Highly Acceptable based on the average mean of 3.78. This result signifies favorable inclinations of students towards the way the teacher implements DI in the literature classes. The respondents find the activities engaging and student-friendly. Thus, they are more motivated to participate and perform better in the task assigned to them. Tomlinson (in Waid, 2016) contends that small groups are beneficial to students.

Table 7 shows the highest mean of 4.32, categorized as Most Acceptable was given to the teachers' respect to students' differences. It was followed by 3 items

Table 7. Students' perceptions on the acceptability of differentiated instruction: environment.

DI Element: Affect/Environment The teacher....	Mean	Std. Dev.	Description
B.1. changes the arrangements of seats according to class activity.	3.91	1.0401	Highly Acceptable
B.2. encourages the students to make decisions and choose options.	4.09	0.9547	Highly Acceptable
B.3. varies his/her reward system and positive reinforcements to students.	3.09	0.9310	Acceptable
B.4. shows high respect to students' differences in class.	4.32	0.9680	Most Acceptable
B.5. engages the students to the lesson through her facial expressions, tone, gestures and etc.	4.01	0.9941	Highly Acceptable
Average	3.88	Highly Acceptable	

Table 8. Students' perception on the acceptability of differentiated instruction: product.

Learning Competencies: Product The teacher....	Mean	Std. Dev.	Description
C.1.uses criteria or rubrics in rating products or performances.	4.32	1.0023	Most Acceptable
C.2. allows the students to choose their medium of presentation of the same skill.	3.78	0.8868	Highly Acceptable
C.3. assigns students same product or performance but different level of difficulty.	3.49	0.9563	Highly Acceptable
C.4. asks students to do different products or performance according to intelligence/learning styles.	3.53	1.1190	Highly Acceptable
C.5. allows for other students to rate their classmates performance through rubrics.	3.81	1.0751	Highly Acceptable
Average	3.79	Highly Acceptable	

with Highly Acceptable in the teacher's modification of the classroom through seating arrangements, encouragements to students' decision-making and choices in their learning and engaging students through facial expression, tones, gestures and other non-verbal modes of communication with the mean 3.91, 4.09 and 4.01, respectively. In terms of the reward systems and positive reinforcements employed by the teachers, the respondents said that it is Acceptable with the mean of 3.09. As a whole, the respondents rated the teacher's implementation of DI as Highly Acceptable in terms of Environment or Affect.

This only means that with the use of DI in the English literature classes, students feel motivated and are satisfied with the learning outcomes (Cox as cited in Gentry, Sallie & Sanders, 2013). Also, innovations in the classroom setting such as the physical arrangement, and reward systems are critical in providing an environment which is conducive to learning.

Table 8 shows that the teacher's use of rubrics and criteria has the Most Acceptable description with the mean

of 4.32. Joseph et al. (2013) specify that differentiating the product should demand allowing certain options for students to demonstrate what they have learned and gaining freedom on how to showcase their strengths and skills; creativity and critical mind set. In terms of choices for output presentation, Bailey and Williams-Black maintained that such freedom added to the self-satisfaction of students and confidence that they can finish the task they had opted (as cited in Joseph et al., 2013).

Significant Relationship between the Students' Academic Performance in English Literature Class and Perception of DI's Level of Acceptability

Table 9 displays the statistical treatment of the data gathered from the respondents' academic performance and their scores from the survey questionnaire on their perception regarding the DI's acceptability in the English literature lessons. The data presented means that there is a weak relationship between performance and perception as indicated by the r-value of 0.2597. The coefficient of determination described the accountability

Table 9. Significant Relationship

Regression Statistics				
R			0.25965	
Coef of Determination			0.06742	
Adjusted R Square			0.05531	
Standard Error			6.01792	
Observations			79	
	Coef	Std Error	t Stat	P-value
Intercept	74.5574	4.4364	16.8058	1.76 x 10-27
Perception	2.72579	1.1553	2.3594	0.0208*

of the perception in predicting performance only at 6.7%. The other 93.3% accounts for other predictors of performance but were not included in the study. Although the relationship was weak, it was significant. Moreover, the P-value is 0.0208 is lesser than the standard level of 0.05. Hence, this result signifies that the null hypothesis is rejected. Thus, there was a significant relationship between the students' academic performance and perception on the acceptability of Differentiated Instruction in English Literature classes.

The research likewise confirms to many researches that revealed that instructional interventions tapping on the individuality of students and tailoring to the learning needs, learning styles, interests, backgrounds and preferences of every student can lead to a statistically significant difference in academic performance (Dunn et al. as cited in Koeze 2007; Valiandes; Dosch and Zidon as cited in Aranda and Zamora, 2016).

CONCLUSIONS AND RECOMMENDATIONS

This research evaluated the acceptability of Differentiated Instruction (DI) in teaching English literature to Grade 10 students in Soom Integrated School, Trinidad, Bohol for the School Year 2019-2020 as basis for the crafted enhanced DI-based learning packets.

Based on the findings, it is concluded that Differentiated Instruction is proven to be effective in English Literature classes as shown in the students' good academic performance and highly acceptable perception towards DI.

Since the students' academic performances in the English 10 literature learning competencies were generally categorized as average , English teachers are challenged to maximize better results in students' performance in literature class by tapping the students' individuality using the principles of Learning Styles, Multiple Intelligences and Differentiated Instruction. However, they shall not restrict differentiation with one or two strategies and of using the same all throughout their teaching of literature topics or following in to-to what is provided by the book but they may always consider and reconsider students' interests, styles, background and preferences. They may adopt the enhanced DI learning packets using strategies such RAFT Technique, cubing, tune-up stations, tic-tac-toe, flipped classroom, jig-saw activities, exit cards, and journal writing to add fun and engage the learners in the literature class.

Lastly, this study may serve as a benchmark for future DI researchers focusing on the administrators' or teachers' perspective.

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Work-Life Balance: Exploring Meanings and Opportunities Among Employees
of Central Mindanao University

Athena Jan I. Derayunan, Hanna Leah E. Relacion, April Rose F. Buntod, and Bryan Lee D. Celeste

Department of Behavioral Sciences, College of Arts and Sciences,
Central Mindanao University, Musuan, Maramag, Bukidnon, Philippines 8710

ABSTRACT

This paper describes the work-life balance among employees of Central Mindanao University. It focuses on the meanings and opportunities attached with work and life by discovering their day-to-day struggles, and experiences. Descriptive and exploratory research approaches were used wherein respondents were conveniently sampled. Data were gathered through one-on-one in-depth interviews with 10 respondents following a set of inclusion criteria. The respondents represented 6 faculty members and 4 staff. Results of the study revealed that respondents go through work struggles due to unclear job duties and responsibilities; generally heavy work load; personal relationships and social activities were affected; feelings of helplessness to improve struggles. In spite of the difficulties encountered by the respondents, these have not affected them finding their work to be meaningful; enabling them economic stability and personal fulfillment.

Keywords: work, life, balance

INTRODUCTION

Greenhaus et al. (2003) defined work life balance as the how individuals balance their involvement between their responsibilities related to their job and family or life and their satisfaction with the outcome.

Nowadays, people live in a fast-paced society where pressures and various forms of stressors affect work and life balance. In the contemporary world, where technology is thriving, bringing in sophisticated fields of electronics and devices, obscures the boundary between work and life (Gaskell, 2020). Achieving balance between work, family, and that of personal responsibilities is an important commitment and is posed to be challenging for individuals as it affects commitment, well-being, productivity, sustainable work, and stress (Voydanoff, 2004; Broers, 2005).

Achieving Well-Being Through Work-Life Balance

This study is anchored on the Model on Self-Concordance and Organizational Support Theory as this research tried to explore on the meanings and opportunities attached to achieve work and life balance.

The self-concordance model of Sheldon and Elliot (1999) said that the model makes it understandable the process wherein goals relate to well-being. Taken from Deci and Ryan's (1985) self-determination theory (SDT), it proposes that individuals not only pursue goals for several reasons but also because of goals with motives that represent deep values (intrinsic or identified) (Judge et al., 2005). Propelled by their identified or intrinsic goals, they try to achieve life improvement and personal growth. As mentioned by Gravador & Calleja (2018) the model promotes sustained effort over time, which will then

increase the probability that the goals will be attained, and later lead to positive changes in well-being (p.787).

This has resonance to the study of Koon (2020) and Mukherjee (2019) stating that, organizations fail to identify the interlace of work and life which is necessary in order to strengthen employee well-being; superiors see work-life balance as a craze and ignores the importance of such. Giving opportunities in the workplace that may enhance career growth of employees is imperative; these opportunities represent options, new goals set, and possibilities that individuals in the workplace conceive to have in their future at work and in their personal lives (Zacher & Frese, 2011).

While the self-concordance model gives a grasp on how an individual's goals relate to well-being, it is also integral to understand how employees may be supported by the organization which is explained by the Organizational Support Theory (OST). It emphasizes on how much support is provided to employees by valuing their contributions and provide care for their well-being (Kurtessis et al., 2017). Failure to extend support to employees' need for work and life balance sends a negative view towards the organization.

Work-life balance initiatives in various organizations are primarily concerned with the employees' interaction between paid and unpaid work activities, things such as leisure along with personal development (State Service Commission, 2005). Mesimo-Ogunsanya (2017) proposed that there should be shared benefits for employees and the organization. Though work has been recognized as

Corresponding author:
Athena Jan I. Derayunan
Email Address: athenaihsan@yahoo.com

an avenue for social growth, personal fulfillment, having sense of identity as well as being one of the determining factors people can improve their quality of life, it has been said that it is also an avenue wherein it presents multiple risk factors for the biopsychosocial health of employees it may in the form of absenteeism and even chronic disease (Vieco Gómez & Abello Llanos, 2014).

Conceptualizing Work-Life Balance

There is an abundance of studies revealing literatures of work-family life as representative of work-life. However, these terms are in theory distinct (Kalliath & Brough, 2008). The definition of work may be relatively clear in organizations however, the life component goes above familial responsibilities. As such, it should be understood that in order to provide for the necessary support and aid in the achievement well-being through work and life balance, there is a need to better understand how individuals interpret the scope of work and life.

Additionally, individuals juggle several roles all at the same time which include work and non-work roles. Although, debates on work and life being separate and independent domains have arisen in which, several literatures have disproved that employees will not allow personal life to meddle with work-life (Jayasingnan et al., 2021).

Rosso and colleagues (2010) identify four major sources of meaning of work. First, is the self that encompasses the values, motivations, and beliefs that employees draw on to understand the meaning of their work. Second, by other people, both on and off the job, including coworkers, managers, and leaders to which the employee belongs and family. Third source of meaning involves the context of the work itself, including the design of job tasks, organizational goals, one's financial circumstances, and the role of nonwork domains, including the national culture that shapes narratives of work. Then the fourth and final source of meaning is spirituality.

It is important to consider that there should be opportunities in the workplace for the career growth development of the employees. This could be in the form of incentives, rewards, and other mechanisms that might foster positive attitude, high morale in the workplace, productivity, and satisfaction. Zacher and Frese (2011) strongly proposes that the focus on opportunities describes how many new goals are set, options, and possibilities that the employees perceived to have in their personal and future at work.

Most literatures on work-life are focused the balance between work and family, giving emphasis on the life component as about familial relations and responsibilities. It should also consider the other aspects of life in order to understand and support work and life balance.

Consequently, this research is take-off on exploring the work-life conditions of the employees in the academe and how this can contribute to the understanding of well-being from the experiences of the employees. Based on the perceived understanding and to attain a clear picture between the work and life domains, narratives of employees were considered.

So then, this paper discusses on points describing on the day-to-day struggles; experiences and meanings attached to work and life, or in their personal and professional experiences. Thus, the overarching question on this research is, "How do Central Mindanao University employees find meanings and opportunities on their work and life?"

The purpose of this research is to contribute to the body of literature to sociology of work, social and organizational psychology putting premium on the employees in the academia. Most importantly, this research is conceptualized for future work interventions, trainings/seminars and personal development of the employees of Central Mindanao University.

METHODOLOGY

As this study explored the meanings and opportunities attached to the personal and professional experiences of CMU employees, the researchers employed both descriptive and exploratory approaches using in-depth one-on-one interviews to understand deeper employees' views of work and life; also, because the study is focused in a small community. The study was conducted in a year and was done in the various units encompassing the nine colleges of Central Mindanao University, the "Academic Paradise of the South", Musuan, Maramag, Bukidnon. Ten (10) respondents comprised of 6 faculty members (4 females and 2 males) and 4 staff (2 females and 2 males) were selected through convenient sampling following two criteria namely: a. He/She must be a temporary or permanent employee of the University; b. He/She must be working in the University for at least a year. The total number of respondents were arrived at, due to the saturation of responses presenting no more new data.

Prior to the gathering of data, a letter request was forwarded to the Office of the President through proper channels. Once approved, study was then issued an Institutional Ethics Review Committee permit to proceed with the conduct of the study, after thorough evaluation of the informed consent and data gathering protocol. Respondents were then approached personally and were given a background of the study then were asked for their consent to conduct the interview. Once consent was granted by the respondents, interviews were scheduled during their vacant time; the place of the interview was set by the respondents according to their convenience making sure the place was well ventilated. Face masks were worn by the researchers and respondents and were sat at least one meter apart. Before the interview, informed consents were read individually to the respondents and had it signed by them using their own pen. Interviews were done by three (3) faculty members were two of which were females and a male; interviewers were assisted by a male research aid who took notes. Also, the researchers used an audio recording device to catalogue all responses. Interviews lasted for 45 minutes or more per respondent.

Sample questions for the interviews included asking for their day-to-day struggles and if it has affected their lives, what were the reasons. Data were then analyzed and interpreted through thematic analysis.

Scope and Limitations

The eruption of the pandemic presented challenges in the conduct of the study. It caused delays on the data gathering due to the nationwide lock down and the declaration of enhanced community quarantine in Central Mindanao University. This study focuses on the narratives of Central Mindanao University employees. Nevertheless, because of different perspectives and experiences, the outcome of this study may not represent other employees of different organizations.

Ethical Considerations

The researchers wrote a letter to the Head of Agency of Central Mindanao University to ask for an approval to conduct the study. Consent forms were as well signed by the respondents and confidentiality was observed.

RESULTS AND DISCUSSION

This section presents the struggles and the meanings and opportunities attached to work-life balance as perceived by the respondents.

Struggles

Heavy Workload

Doing tasks that are work-related is a relevant part of a job. However, when an individual is entrusted or receives more than what he/she can accomplish more so, more than what is required of the job may result to negative impact to employee. Heavy workload may mean catching up on tight schedules, spending more time stressing, and longer working hours.

As employees of Central Mindanao University, one is required to perform tasks and duties to deliver results. Nonetheless, both the faculty and staff respondents of Central Mindanao University shared their experiences on heavy workload that they have to undertake.

Aside from focusing on instruction and tending to teaching related tasks, faculty members are also faced with responsibilities such as research and extension activities from time to time. At times, when an administrative designation is assigned, the bulk of commitments pile up. For most of the time, these responsibilities overlap at one point or another with each other. Employees who occupy staff positions are no exemption to the pile of responsibilities. They too experience similar position. This is evident in the comments of the respondents, as one stated that:

Respondent # 3: As a college registrar, as a storekeeper, as an accounting clerk, as an office clerk plus document controller mura kog gi lukdo na nimo tanan pasakit sa trabaho. Bug-at jud kaayo. (I function as a college registrar, storekeeper, as an accounting clerk, office clerk, and as a document controller. It is such as heavy task.)

Respondents # 9 and 2 also expressed that:
Kanang daghan bitaw kaayo ihatag na trabaho kay halos dili man ko gusto ug- maka multi-task ko, kay dili ko effective sa multi-task. Kanang one at a time lang. (To much work is given which makes me multi-task. It should be given one at a time.)

Kung naa kay admin load makita jud nimo unsay gakahitabo. That's one great stress jud kay kanang naka ingon gyud o kagahapon pag storya namo sa department nga 'bulahan ang mga faculty nga walay admin load (When you are given administrative load, it will make you realize how stressful it is. Good for those faculty who have no administrative load.)

Most of the respondents have administrative designations, if not, experienced having designations. Apart from those, while faculty members engage in research and extension activities on top of their instruction responsibilities, employees who occupy staff positions work beyond their position's duties and responsibilities in the event that a designation is assigned.
Another respondent revealed:

Respondent # 4: Tanan nimo oras ibuhos gyud nimo sa office. Murag kalimtan jud nimo imong kaugalingon kay murag gi own ka sa office ba.   (All your time in is poured in the office to the extent of forgetting about yourself just like the office owns you).

Other respondents expressed that in the performance of their work responsibilities, and in their commitment to provide quality service, they tend to work beyond the regular working hours extending work into their personal time. This is in relation to Broers (2005) stating that being able to successfully maintain stability and balance between career and personal life and the impact on one's satisfaction at work and personal life can be effortful. Achieving work-life balance impacts overall job performance (Thevanes & Mangaleswaran, 2018).

Unclear Job Duties and Responsibilities

Job duties constitutes a concrete package of employee and employer expectations in order to bring about a tangible understanding of job duties and responsibilities in which, produces the desired work outcome effectively. Nevertheless, unclear job duties and responsibilities happen when employees are not clarified of their roles and are not given clarity as to what is expected of them as part of their job.

Upon interview of the respondents, majority of the employees occupying staff positions and other faculty members relayed their concerns regarding their present position at work. One employee shared by saying:

Respondent # 10: As an employee dli man pud ingon nga dili ta makapili kung aha ta ibutang pero based unta sa imong expertise ibutang unta ka sa place

nga dapat butangan sa imo. (As an employee, we cannot choose where to be assigned, but it should according to your expertise).

Also, respondent # 8 mentioned that:
Eventually, murag nagka daghan ang trabaho and then walay improvement in terms sa nga unsaon pag handle, unsaon pag I mean support pud na ma improve ang opisina. (There seems to be no work with no improvements in terms of how to handle these and also support for improvements in the office.)

While respondent # 2 said that:
Irritable ko basta naa koy kailangan humanon or naay task nga gihatag or kung naay problem sa office nga kailangan ug immediate nga mga solution, action. (I become irritable especially when there are tasks assigned or if there is a concern in the office that needs an immediate solution.)

Respondents felt that they were given tasks that were out of their area of expertise, if not, out of their know-how. They had to accept tasks that are at some point, out of their scope. It was expressed that no advancements were made to address these concerns.

Employees who sense that their responsibilities are not clearly defined can lead them from performing their maximum capacity, affected work output, and may have inability to find that their jobs make a difference. This found coherence with the study of Múnera et al. (2013); Bedoya et al. (2014) stating that the educational sector has the most psychosocial affectedness having different factors in its work environment such as demands for permanent updating, labor market demands, changes in structures and strategies.

Personal Relationships and Social Activities

Relationships and social activities are important in an individual's life. It keeps one healthy in the sense that it allows every person to share oneself and be connected; this also enables people to be feel a sense of belongingness and purpose therefore achieving balance and well-being. Employees of Central Mindanao University felt that their job demands had affected the quality of relationships with their family and friends. Also, affecting their social interactions. As one respondent said:

Respondent # 5: Tungod kay na accustomed nata nga ingon ani na arrangement mura bitaw nga ang akong life naka focus sa career, naa sa atong work. (Because we have been used to this arrangement, it seems that my life is focused with my career).

Respondent # 6 also expressed that: Siguro sa akoa kung moingon kog imong social, imong time sa imong family, napa kay friends, napa kay socio-civic groups ana bitaw na gusto nimo e push nga mga charity wala na dili na gyud sya, kulang sya. (For me, time with socializing, family, friends and socio-civic groups and charity works is affected.)

Even time spent for personal care is affected since most of the time spent is focused on work responsibilities.

Respondent # 7 expressed by saying:
Tanan nimo oras ibuhos gyud nimo sa office kalimtan gyud nimo imong kaugalingon. Murag kalimtan jud nimo imong kaugalingon kay murag gi own ka sa office ba. (All your time is spent in the office and going to a point where you seem to forget yourself as if you are owned by the office.)

Employees felt that they lack the time to engage in social activities and are unable to attend with community activities due to the magnitude of workload that they have, so then time is focused towards the fulfillment of work. It was also revealed that family relationships had been affected to the point where family members complain since most time is spent in working. Likewise, the effect of such is that work is brought home making the home as extension of their workplace.

In order for individuals to be able to care for themselves and be able to impart a better version of oneself in work and with social relations, it is necessary that one builds mutual experiences with others and can share interests which in turn allows growth , security and a sense of community. With respect to this, the study of Osborne and Hammoud (2017); European Agency for Safety and Health at Work (2010), explained that interpersonal behaviors influence productivity and that unlikely effects of such bring about negative interpersonal behaviors; relevant sources of well-being and satisfaction are social support which, includes family and friends. These also lead to recognition at work and respectful relationships.

Feelings of Helplessness

When individuals feel that they are powerless and are not able to react to a situation that is negative or stressful are events that may be experienced by anyone including people in the workplace.

Respondents showed psychosocial dissatisfaction by believing that there is nothing that they can do to improve their current situation; in many ways felt that taking a hold of positive outcomes of the position they are in is impossible. When individuals feel that they have no control over situations, a sense of helplessness is experienced. This was what the respondents of CMU had expressed. As two of the respondents claimed that:

Respondent # 10: Sa bagay, mura bitaw any time you will be out of this place. Ang kuan lang ang uncertainty ba mura man pud ug helpless kaayo ta. Helplessness gyud ang kanang murag struggle. (It looks like as though anytime you will be out of this place. The uncertainty makes us helpless and feels like a struggle).
Respondent # 8: Naa man gud mga policies sa work nga pagtuo nako dili ko kauyon nya diha akong conflict. Pero wala kay ma 'DO' tungod kay part ka sa organization. (There are work policies that I do not agree with. But what can we do about it, when you're part of the organization.)

Respondent # 2 also said that:
Murag wala koy choice bitaw. Ang akoang mindset

kay "kayanon nako ni kay wala kay choice. (I do not seem to have any choice. I put my mindset as "I can do this." I am left without any choice.)

To some extent, respondents felt that this was because they did not belong to the higher management of the organization that made it harder to be heard. They felt that they there is noting that they can do to improve their situation and that they are unable to take a hold of agreeable outcomes related to their work concerns. This has made them to not avoid the situation but behave in a way that seems there is nothing that could change the situation. This supports the study of the European Agency for Safety and Health at Work (2010) stating that psychosocial health and discontentment with work are effects of the type and demands of work, as well as the availability of resources in order to manage the demands successfully (p.1).

Meaning and Opportunities

The perception of work to be meaningful motivates people in the workplace as they may find a sense of fulfillment and purpose in it. Individuals in the workplace may feel empowered and therefore, having control over their work responsibilities. Respondents of this study shared that they find meaning in their respective work and found it to be rewarding. Being able to impart their knowledge to students, address client's need, and somehow being able to touch lives are some of the reasons why respondents find meaning to their work. One of our respondents stressed:

Respondent #9: Aside from the monetary, I would say I had touched lives especially my to students. And I am really happy because some of them are working abroad, or maybe here in the locale. They are now working as managers so even if I see them in food chains, I am really happy that they were able to graduate.

Moreover, respondents # 5 and 1 said that:
Somehow, naa pud koy contribution sa kanang mga panghitabo sa CMU. Kay kanang I believe that I was able to deliver what I have to deliver to clienteles diri, to the administration, to the government. (Somehow, I feel like I also have a contribution to CMU. I believe that I was able to deliver to the clienteles, to the administration, and to the government.)

Tungod ni CMU nakahuman bya ko sa akong masters naka skwela bya ko sa akoang on-going karun tungod ni CMU. Dako bya jud kaayo syag allowance ihatag. Ingana, dako kaayo syag mahatag sa professional devt nimo kay murag wala gyud ka gi deprive ni CMU. (Because of CMU, I was able to finish my master's degree and I am presently on-going with another degree. CMU provides a generous amount of allowance and has a significant contribution to your professional development. CMU never deprives you.)

Employees of CMU find their jobs fulfilling, giving them favorable development in their careers. Both the faculty and staff can pursue a higher degree of education and or short courses on a full or partial scholarship basis. Although some respondents felt that they had not been considered to enjoy such benefit. CMU has as well supported them financially, providing employees with a relatively large salary. Others also expressed that CMU allowed them to connect with people and have been a way for them to bring about their advocacies through their work. This has eventually lead the respondents to have effectively balanced their professional and personal life. This supports the study of Zacher and Frese (2009 & 2011) mentioning that giving emphasis on opportunities show new goals, options and possibilities that employees consider in the time to come at work.

Other respondents of this study stressed on their current situation where their career path does not allow them to advance easily. A comparison was stated by other staff respondents in terms of their career paths with faculty members. They expressed that they had to wait for someone to retire, resign, or generally become separated from service so that they can succeed to a higher rank. As stated by one respondent:

Respondent # 8: Kuan pud unta kanang for promotion nga we don't want have to wait for anybody to retire or to die or to kanang resign in order for us to kanang move up para ma promote ka. (I wish we don't want to wait for anybody to retire or to die if not resign in order for us to be promoted).

Respondent # 3: Ang sa staff nga side, wala syay career path nga murag pag kuan nimo next nimo, dinhi naka... Then sa staff mao nay wala na murag wala lang, maghulat lang ka kinsay bakante, then ang usual nako nga makita man gud nako sa staff kay kailangan ka mag faculty para ma improve ingana. (The staff have no career path. You have to wait when a position becomes vacant. Based on what I have observed, you need to become a faculty member to be able to improve in terms of career.)

Furthermore, respondent # 6 said in relation to opportunities:

Ang ako gyud nga kung kana untang grants nga giving access to all. (I wish that all grants could be accessed by all.)

In relation to the career path of employees occupying staff positions or career service employees, their follow the government's plan on Recruitment, Selection and Placement (RSP). This is subject to the guidelines specified Civil Service Commission's Omnibus Rules on Appointments and Other Human Resource Actions (Revised 2018).

Although staff respondents feel that their career path is not as vibrant as compared to the faculty respondents, all respondents continue to stay positive in trying to work-out their careers and personal lives. They mentioned that:

Respondent # 10: I work for the government and I have to see to it that I work according to what is due of me and do more for government service.
Respondent # 3 also added that:

Kung unsa man ang trabaho dapat tiwason jud... maskin unsa pa ka kapoy para dili mag sapaw-sapaw. (Whatever work has to be done, I try to finish it even how tiresome it can be so that it does not pile up.)

In addition, respondents # 7 and 9 respectively said:

You have to do everything even if it is chaotic. At the end of the day, I have learned a lot.

Going back to how do I define my work, I still do find work challenging, I love my work there's no question about that but you also have to be honest that you could be burdened sometimes.

CMU employees try to do their best by employing strategies that would aid in the delivery of their job and avoid further concerns in relation with balancing their professional and personal lives. This found resonance in the study of Edralin (2013) where it stated that work-life balance had positive and negative spillover effects. These effects are stress and high levels of satisfaction; respondents were able to work through work and life through strategies like personal planning and time management.

CONCULUSION

At some point, job demands can curtail employee responsiveness to perform their best. In order to catch-up with the bulk of work, CMU employees use their personal and social time, setting aside familial responsibilities. They consider social relationships and activities, and community life as relatively encompassing their lives and are material. This has therefore, led to giving more priority to work and putting on hold what they perceive as valuable activities and personal time; quality of relationships are sacrificed to compensate for undone work. They are unable to express their concerns relating with their work but continuously perform their responsibilities in delivering their tasks.

It is noteworthy however, that in spite of the employees' struggles in balancing work and life and with the different difficulties encountered, CMU employees continue to be passionate in performing their duties and responsibilities at work. They find meaning in their work and value their time with family, friends, community, and personal space. CMU employees displayed satisfaction and have showed a sense of fulfillment in their work and experienced economic stability.

RECOMMENDATIONS

Based on the findings of this study, this paper recommends that the University should develop programs that give emphasis on taking care of its human resources and improve organizational development. By creating psychosocial interventions or support that would help improve employee well-being and effectiveness that may help strengthen organizational productivity. This may be through the institutionalization of operations such as strengthening open-door policies for employees to express concerns and ideas. Other programs may also include encouraging social activities that will help engage employees, and wellness or self-care benefits for employees to discover ways to achieve work and family balance. The institution should also be able to support employees through giving equal access to opportunities in terms of professional development and other relevant advancements.

A similar study may be conducted incorporating the work from home schedule by incorporating variables such as creating work spaces at home, boundary-setting, and distribution of time. This may add and further improve psychosocial support programs that CMU may institutionalize.

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Essential Macro-Minerals, Crude Protein And Total Antioxidant Activity Of Powdered Ginger And Turmeric At Varied Drying Methods

Gina B. Barbosa[1], Cresilda V. Alinapon[1] and Myrna G. Pabiona[2]

[1] Department of Chemistry, College of Arts and Sciences, Central Mindanao University, University Town, Musuan, Bukidnon, Philippines
[2] Department of Soil Science, College of Arts and Sciences, Central Mindanao University, University Town, Musuan, Bukidnon, Philippines

ABSTRACT

Drying is widely used and one of the most effective methods for food preservation. This study reports the macro-mineral, crude protein, and antioxidant activity of locally produced powdered ginger and turmeric using the air-, oven- and sun drying methods. Kjeldahl method, atomic absorption spectroscopy, and phosphomolybdenum method were used to determine the crude protein, macrominerals (K, Ca, and Mg), and total antioxidant activity (TAA), respectively. Highest TAA was observed in sun-dried turmeric (7.82 ± 4.97mg AAE/g dried sample) while the lowest TAA was observed in sun-dried ginger powder (2.14 ± 0.31 mg AAE/mg dried sample). The measured crude protein of turmeric ranged from 8.34 ± 0.93 - 8.54 ± 0.14% while 6.25 ± 0.42 - 7.41 ± 1.05% for ginger. Essential macro-minerals in turmeric and ginger at varied drying methods ranged from 0.07 to 2.21 % for K, 0.04 to 0.12 % for Mg, and 0.79 to 1.15 % for Ca. ANOVA revealed that the effects of drying methods only significantly affected Mg for turmeric and K and TAA for ginger. Crude protein and Ca content were not significantly affected by the drying methods in both turmeric and ginger powder. Results of this study provide significant insights that prepared turmeric and ginger powder are good sources of crude protein, macro-minerals (Ca, Mg, K), and possess antioxidant properties. All drying methods studied are efficient in retaining the crude protein and calcium content of the ginger and turmeric powder, and the TAA of the turmeric powder.

Keywords: Essential mac-mineral, crude protein, total antioxidant activity

INTRODUCTION

Agricultural products are mostly perishable, and its abundance depends on the season. To ensure the availability of seasonal food or agricultural products throughout the year, food preservation became an important activity in households and communities (Hassan et al., 2007).

Drying is a common way of preserving food. It is an ancient process used to remove water in food through vaporization, and thereby reducing its water activity which results in longer shelf life (Guiné, 2018). Drying also helps to minimize the use of refrigeration systems for transport and storage which are known to be expensive. And most importantly, drying improves the digestibility of foods, increases concentration of nutrients, and can make some nutrients more readily available (Zaharaddeen and Oviosa, 2019).

Ginger (Zingiber officinale Roscoe) also known as "luya" in Filipino is widely cultivated in the Philippines and a native to tropical Asia. According to Mao et al (2019) Ginger have been identified to contain phenolic compounds including gingerols, shogaols, and paradols, which account for its antioxidant, anticancer, antimicrobial, and anti-inflammatory properties. Dried ginger reported to have vitamin C (9.33g/100g), protein (5.08g/100 g), fat (3.72 g/100 g) and minerals like iron, calcium, phosphorous, zinc, copper, chromium and manganese (Shirin Adel P.R.

and Prakash, 2010). In Filipino cuisine, ginger is a common in ingredients in tinola, goto, arroz caldo, paksiw, batchoy and pinakbet. The famous Filipino salabat is also made out of fresh or powdered ginger.

Turmeric (Curcuma longa) also known as "luyang dilaw" in Filipino is widely cultivated in India, Middle East and South East Asia. Turmeric roots are reported to contain volatile oils which includes turmerone, and coloring agents called curcuminoids. Curcuminoids consist of curcumin demethoxycurcumin, 5'-methoxycurcumin, and dihydrocurcumin, which are found to be natural antioxidants (Prasad and Aggarwal, 2011). According to Ahameula et al (2014) and Restrepo-Osorio et al (2019) dried turmeric contains a significant amount of proteins, fibers, fats, and minerals such as iron, calcium, phosphorous, zinc, potassium and magnesium. In addition, turmeric has been used as a food coloring, ingredients in cosmetics or topical ointments, and supplements. It is also responsible for curry's distinctive yellow color and flavor.

Ginger and turmeric are commonly preserved through drying. However, the need for well-established data and the scarcity of scientific studies on the locally produced turmeric and ginger powders in terms of mineral content (Calcium, Ca; Magnesium, Mg; and Potassium, K),

Figure 1. Photograph of representative rhizomes of ginger (A) plant and (B) turmeric.

crude protein, and total antioxidant activity (TAA) after drying is of great importance. Moreover, solving nutritional problems or mineral deficiency as addressed by Angeles-Agdeppa et al (2019) that nutrient intakes of Filipino schoolchildren and adolescents were highly inadequate, particularly among the poor and those living in rural areas. Hence, this study investigates the level of mineral content (Ca, Mg, and K), crude protein, and TAA in both ginger and turmeric after air-, sun- and oven-drying.

METHODOLOGY

Location of the study

Preparation of turmeric and ginger powders, metal, and crude protein analyses were conducted at the Soil and Plant Analysis Laboratory (SPAL), Department of Soil Science, College of Agriculture, Central Mindanao University (CMU), University Town, Musuan, Bukidnon, Philippines. Antioxidant activity determination was done at the Natural Science Research Center (NSRC), CMU.

Sample Collection

Turmeric rhizomes were collected in Northern Mindanao Agricultural Crops and Livestock Research Complex (NMACLRC), Dalwangan, Bukidnon, Philippines (8°12'01.26''N, 125°02'35.73''E) while ginger rhizomes were collected in San Martin, Malaybalay City, Bukidnon, Philippines (7°59'55.3''N, 125°11'42.3''E). The collected samples were placed in a sack and were transported to SPAL. Rhizomes were immediately subjected to sample preparation upon arrival in SPAL Representative photographs of the rhizome samples are shown in Figure 1.

Sample Preparation

Rhizomes were washed thoroughly with tap water to remove the soil debris and finally rinsed with distilled water. Rhizome samples free of wet were weighed then divided into three (3) parts and transferred to the assigned tray. The rhizomes were peeled using a knife. The peeled samples were then washed with tap water then finally rinsed with distilled water. Samples were chopped thinly

using a knife, divided into three parts with 3000 g allocated for each of the three (3) drying methods.

Air Drying

Clean ginger and turmeric rhizomes placed in a clean tray were air-dried for nine (9) days at ambient temperature which is between 27^{0}C – 31^{0}C .

Oven Drying

Clean ginger and turmeric rhizomes were transferred into an aluminum foil and oven-dried at 65°C for 78 hours.
(on what basis the duration of drying (78hrs) was decided)

Sun Drying

The third portion of the clean turmeric and ginger rhizomes were boiled separately for 40 minutes, transferred into a clean tray to drain water, then transferred into a plastic wire mesh for sun-drying for six (6) sunny days.
Samples were considered dry after air-, sun- and oven-drying when samples were tried to break into smaller pieces, it would snap and crack crisply and not bend or be malleable at all.

The loss on drying was calculated using equation 1 below:

$$Loss\ on\ drying = \frac{Initial\ weight\ of\ sample - Weight\ of\ sample\ after\ drying}{Initial\ weight\ of\ sample} \times 100 \qquad \text{Equation 1}$$

Total Antioxidant Activity (TAA) determination

The TAA of the extracts was determined by adapting the method previously described by Prieto, Pineda, and Aguilar (1999) with several modifications such as the use of Eppendorf tubes as the reaction vessel and centrifugation after the reaction. In an Eppendorf tube containing 400 µL of the test solution and 1200 µL of a reagent solution (prepared by mixing an equal amount of 0.6 M sulfuric acid, 28 mM sodium phosphate, and 4 mM ammonium molybdate) were added. The Eppendorf tubes were then covered tightly with aluminum foil and

incubated at 95 °C in an oven for 90 min. After incubation, the mixture was allowed to cool to room temperature. The mixture was centrifuged at 5000 rpm for 3 min. A 200 µL of the supernatant liquid was transferred into a well of a 96-well plate. The absorbance of the mixture was measured at 695 nm. The same procedure was done on the working ascorbic acid standards for the calibration curve and blank (ethanol). The TAA, expressed in milligram ascorbic acid equivalents per gram sample (mg AAE/g sample).

Crude Protein (Kjeldahl method)

Digestion

A 0.2 g of air-dried, oven-dried, and sundried plant samples were separately weighed, wrap in a piece of quantitative filter paper, and drop as package into the digestion tube. One (1) g of catalyst (100g potassium sulfate,10 g copper sulfate, one gram selenium) was added, and five (5) mL of concentrated sulfuric acid carefully poured to into the mixture. While digesting the sample using digestion heater, the heater was regulated so that the H_2SO_4 condenses about 1/3 of the way up to the neck of the tube. The tube was rotated at intervals to facilitate the digestion of the sample. When the sample no longer contains carbonaceous material as shown in the appearance of blackish color or a when clear digests was obtained, the digestion stops. After cooling, 30 mL distilled water was added and cautiously mixed. The contents were transferred to 500mL Kjeldahl flask for distillation.

Distillation

Twenty mL of the 4% H_3BO_3 in a 125 mL Erlenmeyer flask was used as receiving solution. It was placed under the condenser of the distillation set-up so that the end of the condenser is below H_3BO_3 solution.   A 25 mL of 10 N NaOH was added to the flask by holding the flask at 45° angle so that the alkali reached the bottom of the flask without mixing with the digest. As soon as the alkali mixed with the sample, the flask was attached as quickly as possible to the distillation set-up. The contents were mixed by swirling, and distillation started immediately.

The heating was regulated to prevent suck-back of H_3BO_3 and to minimize frothing or bumping during distillation.   The flow of the cold water through the condenser was monitored to keep the temperature of the distillate at about 35°C. When the distillate was about 100mL, the receiver flask was lowered so that the end of the condenser was above the surface of the distillate. After rinsing the end of the condenser with distilled water, the flask was removed and the distillation terminated.

Titration

Determination of the NH4-N was followed by titrating the distillate with 0.05 N standard acid. The color change at the endpoint is from green to purple. The blank solution was run simultaneously with the sample and carries the titration to the same end point. Equation 1 was used to calculate crude protein. Kjeldahl method does not measure the protein content directly. A known conversion factor of 6.25 was used to convert the measured nitrogen concentration to a protein concentration (Equation 2).

$$\%Nitrogen = \frac{(T-B)\,x\,N\,x\,0.014}{S}\,x\,100 \qquad \text{Equation 2}$$

where:

T = sample titration, mL of standard acid
B = blank titration, mL of standard acid
N = normality of the standard acid
S = oven-dry weight of the sample in g

Digestion of turmeric and ginger powder for metal analysis

Digestion of the rhizome powder was done following the method of AOAC (2005). One gram air-dried, oven-dried and sundried plant samples of turmeric and ginger were weighed and placed in 30 mL porcelain crucibles. Porcelain crucibles were placed into a cool muffle furnace, and increase temperature gradually to 550°C. The ashing continued for five (5) hours after attaining 550°C. The furnace was shut –off after five (5) hours and was allowed to cool by opening the door cautiously for rapid cooling. When cooled, the porcelain crucibles then taken out carefully. The cooled ash was added with minute amount of distilled water from a jet of wash bottle at the side of the crucible. A 5-mL of 6 N HCl was added to allow soaking of ash, and the solution was allowed to stand for at least 30 minutes, and mixed with a glass rod. After 30 minutes, the solution was filtered using Whatman filter paper, diluted to 50-mL using deionized water, thoroughly mixed, and properly labelled.

Metal Analyses

Aliquots were prepared for the determination of the concentration of K, Ca, and Mg by Atomic Absorption Spectroscopy (AAS), Agilent-280FS. For Ca and Mg, 1:49 dilutions, one (1) mL of rhizome digest solutions were added into 50 mL centrifuge tubes Nalgene type using one mL pipette. Five (5) mL of 20,000 ppm $SrCl_2$ solution were added and brought to volume with distilled water. For K, 1:49 dilutions were done by adding one (1) mL of rhizome digest solutions into 50 mL centrifuge tubes Nalgene type using one (1) mL pipette and diluted with 49 mL of distilled water.

RESULTS AND DISCUSSIONS

The results of this study are summarized in Table 1. Drying is widely use and one of the most effective methods for food preservation (Singh et al., 2010). It is a process where moisture in fresh material is removed to reduce water activity which leads to the inhibition of microbial growth and minimization of deteriorative biochemical reactions. The percent loss on drying in varying drying methods ranges from 86.47-90.99% for ginger, while for turmeric ranges from 86.39-89.30%. According to Zaharaddeen and Oviosa (2019), removal of moisture using heat generally improves the digestibility of foods, increases concentration of nutrients, and can make some nutrients more available.

Furthermore, drying can also reduce the weight and size of plant material, thereby minimizing the extraction cost, and solvents can easily penetrate the sample, which

Table 1. Moisture, macro-minerals, crude protein and TAA after at varied drying methods

Sample	Drying method	Loss on drying, %	*Macro-minerals			*Crude Protein, %	*TAA, mg AAE/g dried sample
			Total Ca, %	Total Mg, %	Total K, %		
Ginger	Air	86.88	1.21±0.06[a]	0.12±0.02[a]	2.21±0.08[a]	7.04 ± 0.60[a]	2.80 ± 0.46[a]
	Oven	86.47	1.21±0.11[a]	0.12±0.02[a]	1.91±0.04[b]	6.25 ± 0.42[a]	3.22 ± 0.16[a]
	Sun	90.99	1.35±0.19[a]	0.11±0.04[a]	1.48±0.06[c]	7.41 ± 1.05[a]	2.14 ± 0.31[b]
Turmeric	Air	86.39	1.13±0.16[a]	0.11±0.01[a]	1.73±0.06[a]	7.67 ± 0.29[a]	6.73 ± 0.41[a]
	Oven	87.98	1.08±0.07[a]	0.07±0.03[b]	2.18±0.13[a]	8.54 ± 0.14[a]	4.48 ± 0.41[a]
	Sun	89.30	1.15±0.09[a]	0.08±0.01[c]	1.83±0.41[a]	8.34 ± 0.93[a]	7.82 ± 4.97[a]

*values are in mean±SD (n=5) in five replicates
[a,b,c] significant difference of mean (Turkey's<0.05)
Digits with the same superscripts means no significant difference

results in more phytochemicals in the extract (Saifullah et al., 2019).

In this study, curing process which involved boiling fresh and clean rhizome, was done prior sun drying since it was previously reported by Gounder and Lingamallu (2012) that the cured rhizomes of C. longa have higher yield of volatile oils than those of the fresh and dried. This was further confirmed in the study of Barbosa and Minguillan (2021) which revealed that ethanolic extracts of the cured rhizomes of E. philippinensis and C. longa exhibited higher total antioxidant activity, total phenolic content, and curcumin content than the fresh one.

For measured antioxidant activity, the highest TAA was observed in sun-dried turmeric (7.82 ± 4.97mg AAE/g dried sample), followed by air-dried turmeric (6.73 ± 0.41 mg AAE/g dried sample), and oven-dried turmeric (4.48 ± 0.41mg AAE/g dried sample). Regardless of the drying method, the lowest TAA was observed in ginger. A 2.14±0.31, 2.80 ± 0.46, and 3.22 ± 0.16 mg AAE/g dried sample of TAA were measured in ginger after being subjected to the sun, air and over drying, respectively. The effects of drying methods with respect to TAA were significantly observed in ginger but not in turmeric.

Several reports were published about the effect of different drying methods on the antioxidant capacity of plants (López-Vidaña et al., 2016). For instance, Lee and Lee of (2009) reported that increasing the drying duration at 100°C had increased the percentage drop of isoflavone content in soybeans. Thermal drying (microwave-, oven-, and sun-drying) of the leaves of ginger species such as Alpinia zerumbet, Curcuma longa, Etlingera elatior, and Kaemferia galanga resulted in a drastic decline in total phenolic content and antioxidant activity (Chan et al. 2009). According to Lim & Murtijaya (2007), the reduction in antioxidant properties during oven drying is caused by the degradation of phytochemicals, degradative enzymes, and heat decomposition due to slow heat transfer. This maybe the reason why the measured antioxidant activity of turmeric after oven drying is lower, compared to the other two drying methods.

In addition, it is interesting to note that the levels of antioxidant in turmeric is higher compared to ginger regardless of varying drying method. A similar trend was reported by Mushtaq et al (2019) that the free radical scavenging activity and DPPH of turmeric powder extract was higher than ginger powder extract. According to Zagoosh et al. (2019), the production of active ingredients in medicinal plants is guided by genetic processes which means that antioxidant level of one plant to another varies. Furthermore, other than species, the quantity and quality of active ingredients in medicinal plants are strongly influenced by several factors such as water, air, soil, elevation, extraction methods, and antioxidant measurements. This might be the contributing factors why the measured TAA in ginger are lowered compared to turmeric.

- (contradintory to the results shown) – Cresilda -addressed

In Results part the measured TAA is reported to be highest in sun-dried turmeric (7.82 ± 4.97mg AAE/g dried sample) whereas sun-drying has been mentioned as the contributing factor for reduced TAA after sun drying compared to other drying method. –Cresilda- addressed.

This is contradictory, so may be clarifiedPlant-based proteins have been the subject of growing interest from researchers and consumers because of their potential health benefits, particularly in weight management and mineral bone enhancement. The world health organiza-tion (WHO) even recommended a daily intake of 0.83g/Kg per day of plant-based protein (Ahnen et. al., 2019). The crude protein content in turmeric and ginger powder after different drying methods are presented in (Table 1). The measured percent crude protein of turmeric ranges from 8.34 ± 0.93 -8.54 ± 0.14%, while 6.25 ± 0.42-7.41 ± 1.05% for ginger. A dried turmeric powered reported by Mushtaq et al (2019) contained 8.72 ± 0.41% crude protein which is a little bit higher but likely similar compared to our report-ed range. However, in case of ginger powdered, the crude protein reported by Mushtaq et al (2019), Shirin Adel P. R. and Prakash (2010), Osabor et al (2015), and Sangwan et al (2014) were lower compared to our obtained range. This varying data in ginger might also be affected by the factors mentioned by Zagoosh et al. (2019). Nevertheless, results of this study indicate retention of crude protein even at varied drying methods., Suggesting that both ginger and turmeric might be a good source of plant-based protein

aside from peas and legumes.

(Retention of crude protein after drying as observed in this study should be corroborated with supporting references.) – Cresilda (addressed)

Minerals are essential to human life. According to Karppanen et al.(2005), increased intakes of K, Ca, and Mg and low consumption of sodium have an excellent blood pressure- lowering effect. The mean levels of the studied essential elements in turmeric and ginger at varied drying methods (Table 1) ranges from 0.07 to 2.21 % of K, 0.04 to 0.12 % of Mg, and 0.79 to 1.15 % of Ca. The highest levels of K, Ca, and Mg in turmeric are found in oven-dried turmeric (2.18%), sun-dried turmeric (1.15%), and air-dried turmeric (0.11%), respectively. In the case of ginger, highest values of K, Ca and Mg were observed in air-dried ginger (2.21 %), sun-dried ginger (1.35 %) and oven-dried ginger (0.12 %), respectively. Similar results were also reported by Ahameula et al (2014) and Restrepo-Osorio et al (2019), and Mushtaq et al (2019) in dried turmeric and ginger, respectively. This indicates that minerals such as K, Mg, and Ca are still present despite different drying methods used, suggesting, dried powdered ginger and turmeric are good sources of macro-minerals. (This observation should also be corroborated with supporting references.) – Myrna/

CONCLUSION AND RECOMMENDATION

Air-dried and oven-dried ginger powder have higher TAA than sun-dried ginger powder. TAA of oven-dried of turmeric is lower compared to the sun and air-dried. All essential macro-minerals were detected in all samples, and the levels were in the order of K>Ca>Mg in both prepared turmeric and ginger. Significant difference on the different drying methods were only observed in K and TAA for ginger and Mg for turmeric. The crude protein of all samples was retained even after drying. All in all, regardless of drying methods used, ginger and turmeric retain its crude protein and Ca while TAA was retained in turmeric. Hence, both ginger and turmeric are good sources of proteins, antioxidants and macro-minerals that can be used or consumed by people with mineral deficiency. Furthermore, it is recommended that further investigation must be done on other types of drying methods and determine the micro-mineral content such as iron, zinc and copper.
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Parents' Roles And Capability As Tutors In Modular-Distance Learning

Bernard Evangelicom V. Jamon, Mary Grace C. Jamon, Jonnabel O. Bendebel, and Francis F. Tayong
Department of Education, Division of Talisay City, Talisay City, Cebu, Philippines, 6045

ABSTRACT

Parents play crucial roles in their children's education the in time of the Covid-19 pandemic. The purpose of the study was to ascertain the parents' roles and capability as tutors in Modular-Distance Learning. This study utilized the descriptive-survey method with 240 parent respondents using the purposive sampling from two public schools in the Division of Talisay City, Cebu. In addition, the researcher also used a self-made instrument which was validated to attain the purpose of this study. The gathered data from the survey was then statistically analyzed and computed using Statistical Package for Social Sciences (SPSS). The study revealed that the majority of the parents had reached high school level. The data further uncovered that parents sometimes comply with their roles and agreed that they have at least the capabilities to serve as tutors in modular-distance learning. Meanwhile, there was no significant difference between the parent groups' roles and capability as tutors. Finally, using the Pearson R correlation, the data suggest that there is no evidence that parents' educational attainment could influence their capability as tutors. It is concluded that parents are doing their best to fulfill their roles and assist their children in these unprecedented times. Hence, educational institutions must orient parents on their significant roles in modular-distance learning modality and conduct further study on the influence of the new educational setting in the time of pandemic on parents' relationship with their children, their struggles and challenges, and their views about the other existing learning modalities adopted by the public and private schools.

Keywords: Capability, Modular-Distance Learning, Parents, Roles, Tutor

INTRODUCTION

The Corona Virus (Covid 19) pandemic changed the way teachers teach and the way students learn. It paralyzed all the educational activities that people were experiencing during the pre-pandemic era (Asio, et al, 2021). The traditional face-to-face classes shifted into the different learning modalities considering the lockdowns, social-distancing measures, and other health protocols established by the government to slow the spread of the virus, which has been infecting people worldwide more than a year now. The United Nations Educational, Scientific and Cultural Organization (UNESCO) reported that over 1 billion learners in 188 countries are affected by the pandemic (Bhamani et al., 2020).

To continuously provide quality education to its learners, the Department education came up with different learning modalities to be adopted by the schools. Among the various learning modalities offered, the Department of Education chose to adopt Modular- Distance Learning as the primary learning modality to be used in all schools nationwide, considering the socio-economic status of its learners, available technology, and internet connectivity.

The Department of Education, during the time of the pandemic utilizes distance learning to continuously educate learners all over the country. It defines distance learning as a "modality where learning takes place between the teacher and the learners who are geographically remote from each other during instruction." The three learning modalities in distance learning are Modular-Distance Learning, Online Distance Learning, and Radio/ TV Based Instructions (Quinones, 2020).

Despite all its efforts, the Department of Education has challenges in the implementation of distance learning considering the poor internet connectivity in the Philippines and the technological divide among learners (Boholano et al., 2021). Hence, Modular-Distance Learning is the most feasible way to provide education to other learners in a remote way.

Though Modular-Distance Learning is costly, the Department of Education adopted it to continuously provide quality basic education to its learners. According to Undersecretary Diosdado San Antonio, 13 million or approximately 59% of 22 million learners will be learning using Modular-Distance Learning (Magsambol, 2020). Based on the Department of Education survey, 8.9 million parents preferred the adaptation of modular-distance learning, where learners will be given self-learning modules to answer and study with (Bernardo, 2020). With this survey, the Department of Education is assured that parents want to take responsibility in helping educate their children in a pandemic situation.

With this adopted learning modality, the Department of Education recognizes the crucial roles of parents in educating their children in these unprecedented times. Not just like before, parents today have no choice

Corresponding author:
Bernard Evangelicom V. Jamon
Email Address: Jamonbernardevangelicom@gmail.com

but to educate their children at home (Parczewska, 2020).

A related literature revealed that one of the challenges in the new normal in Philippine education learning is the parents' support for distance learning (Asio & Bayucca, 2021). Historically, parents serve as the first teachers of their children because before they send their children to school, they are the ones who teach values and essential life skills that their children may acquire as they are prepared to face the real tests of life. In this pandemic situation, they are again challenged to serve as facilitators and tutors of their children. Hence, parents are encouraged to look into their children and to assist them while answering the modules or Self-Learning Kits. Since teachers are not around facilitating learning, parents fulfill some of the roles of teachers to educate their children.

However, considering the diverse educational background of the parents in public schools, the roles of parents in modular-distance learning are not established, and their capability as tutors to their sons and daughters has not yet been assessed. No study and existing literature are conducted on these important and critical topics. This compels the researchers to ascertain the parents' roles and capability as tutors in modular-distance learning in the new normal in Philippine public education. In this regard, this study specifically sought to determine parents' highest educational attainment, their roles, and their capabilities as tutors in modular-distance learning.

METHODOLOGY

Research Design

This study utilized the descriptive survey method using the researcher-made questionnaire. Jamon and Cabanes (2019) define the descriptive method "as a research design wherein the researcher uses statistical treatment to understand behavior or characteristics of certain demography." They decided to use the descriptive survey method because they would dwell on the roles and capabilities of parents as tutors.

The data were gathered during the distribution and retrieval of Self-Learning Kits (SLKs). The research instruments were disinfected before and after their administration. Only parents who returned and got the SLKs answered the instrument.

The instruments were administered by the selected class advisers. They were oriented on how the research instrument should be administered. They were reminded to follow all the health protocols during the administration of the research tool.

2.2 Respondents

Using the purposive sampling, 240 parents equally distributed from grade 7 to grade 12 were the respondents of the study both from the night and national high schools in the Division of Talisay City, Cebu, Philippines. The data were gathered between April 19-30, 2021.

Research Instrument

The instrument used in this study was researcher-made which underwent pilot-testing by 40 parent-teachers whose children are studying in public schools. The research instrument consists of three parts, namely: parent respondents' highest educational attainment, parents' roles in modular-distance-learning, and parents' capability as tutors. The researchers used the four point Likert Scale in measuring the parents' capability as tutors.

Data Analysis

The data gathered were tallied, recorded, analyzed, and interpreted. This study utilized the following statistical treatment of the data:

- Simple Percentage. This is used to determine the percentage of the parents' educational attainment.
- Weighted Mean. This is utilized to analyze and interpret the extent of their roles and the level of their agreement with regard to their capability as tutors.
- Pearson Product Moment Correlation. This is used to determine if there is a significant relationship between the parents' educational attainment and their capability as tutors.
- Z Test. This is utilized to assess the significant difference between the respondent groups' roles and capability as tutors.

Ethical Consideration

This was non-funded action research. Participation in this study was voluntary, and no monetary consideration and risk for the respondents of this study. The respondents could also withdraw anytime from the study.

Before the data gathering, the researchers secured approval from the schools division superintendent and school heads to conduct a survey among the selected parents. The researchers assured that the data gathered in this action research would only be used for academic purposes. The identities of the respondents were kept with utmost confidentiality based on the Data Privacy Act. Safety and health protocols were observed and followed during the conduct of the survey.

RESULTS AND DISCUSSION

This study determined parents' highest educational attainment, their roles, and their capabilities as tutors in modular-distance learning. Also, this study explored the significant difference between the parent groups' roles and capability as tutors and the relationship between parents' educational attainment and capability as tutors.

Table 1 showed that the majority of parents reached at least high school level. Many parents, as well, graduated from high school and reached college level. This suggests that parents are increasingly becoming more educated as the 21st century progresses. Noticeably, several parents are still elementary level or graduate, which could have an impact on their capability to guide and tutor their children. It is evident that parents give what they do not have. Agostinelli et al. (2020) warned that children who came from uneducated families could have an impact on their school performance. If parents have not reached at least secondary level, they will have difficulty guiding and tutoring their children. Hence, parents who are educated are assumed to have more knowledge to impart and have wider educational experiences, which can have a direct

bearing on their children's education.

Table 2 revealed that according to parent respondent groups, they always monitor their children's progress in answering their modules/SLKs, check if the answers of their children are complete and correct, seeks feedback from their children about their modules/SLKs, and check if their children feel stressed or tired of answering the modules/SLKs. Parents have significant contributions to children's success in life and school (Sadiku, 2019; Boonk et al., 2018). Studies previously revealed that the more parents are involved in their children's education, the higher the chances their children would perform better at school (Chaundry et al., 2015). Also, academic institutions can only become successful if parents' cooperation is maximized (Durisic & Munijevac, 2017).

On the one hand, parents say they sometimes comply with the roles listed from the table. Parents say that they sometimes get and return the modules of their children regularly. This is true as far as the teachers are concerned because there are some weeks that parents could not come to school because they used to tell the teacher-researchers that they have to prioritize their work, care for their children, and do household chores. The researchers cannot blame the parents because they also have other priorities at work and home. However, the parents may request their children above 15 years old, neighbors who have children studying in the same school, and their husbands and wives. The researchers recommend that in order to help parents, schools may use technology in sending the modules/SLKs to parents who have the technologies and internet connectivity. The Department of Education, as well, may give the parents the modules/SLKs every three weeks in order to save the time of the parents. This would also provide ample time for the teachers to mark their students' answer sheets and save time since they would not distribute and retrieve the modules/SLKs weekly. With these suggestions, both parents and teachers would benefit since they could save time and resources.

On the one hand, parents sometimes help their children answer their modules/SLKs, provide conducive learning study space, read and study the modules/SLKs.

A conducive and positive environment at home is starting point of developing and molding children's attitude and behavior at school (Durisic & Munijevac, 2017). These parental support are relevant because their children would feel that their parents are directly involved in their children's education. Though it is the primary role of the students to answer the modules/SLKs, parents' assistance may be needed if students need help. Parents' attitude towards helping their children with their school-related activities takes its roots from their understanding of the curriculum and school-related policies (Baidi, 2019). Appiah-Kubi and Amoako (2020) claimed that one of the predictors of students' academic performance is the parents' attitude towards education.

Parents also say that they sometimes communicate with their parents' teachers, attend virtual and or limited face-to-face meetings and activities answer feedback notes, and monitor their children's weekly home learning plan. These mechanisms in modular-distance learning serve as communication between the teachers and parents in these unprecedented times. These suggest that parents have to do more with respect to communicating and participating in school-related activities in these trying times. Macebe et al. (2017) explained that parents who are involved in their children's schooling are more aware of the school's policies and goals. Parents' involvement is not isolated within their roles as providers to their children. Rather, it means that they are part of meetings, volunteering for school activities, encouraging their children to study hard, and so on.

Moreover, studies uncover that parents' participation in meetings has a positive impact on their children's achievement (Chaundry et al., 2015). Sadiku (2019) also articulated that the older their children become, the lesser their participation in their children's education. Consequently, secondary teachers may feel that it is useless to communicate with parents since they rarely respond to them and seek feedback about their children's school performance (Durisic & Munijevac, 2017).

Finally, parents were candid enough that they sometimes encourage their children to study hard, reward

Table 1. Parents' Educational Attainment

Parents' Educational Attainment	Parents from A High School		Parents from B Night High School	
	N	%	N	%
Elementary Level	5	4.2	10	8.3
Elementary Graduate	5	4.2	6	5.0
High School Level	55	45.8	46	38.3
High School Graduate	34	28.3	27	22.5
College Level	9	7.5	25	20.8
College Graduate	12	10.0	4	3.3
Post-Graduate	0	0.00	2	1.7
Total	120	100	120	100

Legend:
N- Responses
%- Percentage

and praise their children, and remind their children to be honest in answering the modules/SLKs. These values must always be inculcated to the students, especially when teachers are not around to facilitate teaching and learning. Parents' roles go beyond providing necessary support but also sharing and teaching the values and moral development of their children. As pointed out by Chaundry et al. (2015), it is the responsibility of the parents to encourage their children to study hard and perform better at school.

Parents and schools must have continual partnerships to develop mutual responsibility in educating students (Durisic & Munijevac, 2017).

Table 3 shows that both groups of parents strongly agreed that they taught their children when they were in kinder and elementary, could help improve their children's school achievement if they teach them. They prioritize their children when it comes to helping them with their activities, projects, and assignments. Similarly, if parents help their children with their homework, they tend to perform better at school because they are monitored and guided (Boonk et al., 2018). The data uncover the notion

that parents have more significant role to play when it comes to their children's education when they are still in kinder and elementary. As emphasized in Chaundry et al. (2015), parents play essential roles in their children's lives since they serve as the first parents of their children. Previous studies also revealed that parents who share their academic knowledge with their children and play significant roles in their children's education make their children excel in their academic endeavors and become more productive in society (Macebe et al., 2017; Durisic & Munijevac, 2017).

Parents also say they can help their children increase their performance at school if they tutor or teach them. Similarly, Sadiku (2019) opined that parents who are involved in their children's education have the confidence that they could improve their children's achievements. This could mean that if parents are hands-on on their children's academic activities, one way or another, they could help them improve their children's performance. Furthermore, parents then tend to value education since they said that they always "give priority" to their school endeavors. Essentially, these are key to helping their children continue their education despite the absence of the teachers since

Table 3
Parents' Capability as Tutors

	Parents from A National High School		Parents from B Night High School	
	X	VD	X	VD
1. I used to teach my son/daughter when he/she was in kinder and elementary.	3.33	SA	3.32	SA
2. I can clearly explain concepts or ideas to my son/daughter that he/she does not know or understand.	3.1	A	3.22	A
3. I know or can relate to the contents and activities found in the modules/SLKs.	3.19	A	3.31	A
4. I can teach my son/daughter without the other's help/assistance.	3.09	A	3.05	A
5. I can help improve my son/daughter's school achievement if I teach him/her.	3.19	A	3.33	SA
6. I know how to search for information using the web or the internet.	3.19	A	2.98	A
7. I have background knowledge about the lessons found in the modules/SLKs.	3.02	A	2.97	A
8. My son/daughter enjoys it when I teach him/her.	3.23	A	3.24	A
9. I prioritize my son/daughter when it comes to helping him/her with school activities, projects, and assignments.	3..33	SA	3.27	SA
10. I have a lot of patience when it comes to teaching my son/daughter.	3.23	A	3.23	A
Average Mean	3.19	A	3..19	A

Legend:
    X-   Mean
    VD-   Verbal Description
    SA-   Strongly Agree
    A-   Agree
    DA-   Disagree
    SDA- Strongly Disagree

they have significant responsibilities in educating and managing their children's educational activities at home (Baidi, 2019).

By further examining the data, the top three lowest means come from the parents' background knowledge about the lessons found in the modules/SLKs, capability to teach their children without other persons' help, and capacity to clearly explain concepts or ideas to children that they do not know or understand. The data imply that parents were not updated or educated with the current contents of the K to 12 curriculum, considering that they were products of the old curricula. Moreover, they cannot be faulted for not the having capability to explain well the concepts, knowledge, and ideas found in the modules/SLKs since they have no background knowledge about those and they do not have, not just like the teachers, have the formal training to impart knowledge among their children. Therefore, parents must be given the birds'-eye-view or a little background information about the contents of their children's modules/SLKs and how these modules/SLKs are used to help their children intelligibly.

From another context, teachers could train parents to be tutors to their students (Kupzyk, 2017). With this, teachers are training parents to be partners in teaching students for them to be more involved in their children's education (Guo & Kilderry, 2018).

As reflected in Table 4, the gap between both groups' means is narrow. Based on the Z Test computation with the level of significance of 0.05 using the Two-Tail Test, in which the lower critical value is -1.959963985 and the upper critical value of 1.959963985, there is no significant mean difference between the respondent groups' roles. This is evident from the Z Test score of -1.0121124, which is within the upper and lower critical value. This is also supported by P-Value for the Two-Tail, which is greater than 0.05 level of significance.

Therefore, both groups' responses suggest that they have almost similar roles to play in modular-distance learning.

Table 5 shows that both groups' means are almost statistically the same. The Z Test computation is -0.03694 with the level of significance of 0.05 using the Two-Tail Test, in which the lower critical value is -1.959963985, and the upper critical value of 1.959963985 suggests that there is no significant mean difference between the respondent groups' capability as tutors in modular-distance learning. This is also supported by the P-Value for Two-Tail of 0.970529, which is greater than 0.05 level of significance. Ergo, both groups have the same capability as tutors.

Table 6 reveals a weak correlation between the parents' educational attainment and capability as tutors. Hence, the parents' educational attainment does not affect their capability as tutors. The computation suggests that there is no evidence that parents' educational attainment affects or influences their capability as tutors.

CONCLUSION

It is concluded from the data gathered that parents from public high schools have at least reached high school. They are also supportive of their children's education during modular-distance learning. Despite the difficulties in this learning modality, they do their best to fulfill their roles to continuously support their children's education. Meanwhile, they have problems when it comes to tutoring their children because they have little background knowledge about the contents of modules/SLKs and have less capability to explain the contents of the modules/SLKs.

Hence, schools must empower parents about their significant roles in modular-distance learning modality. Also, schools must orient parents on how should the modules/SLKs be used, including the importance of the competencies and learning contents that are valuable for their children to thrive and survive in this new educational set-up.

Further studies may be conducted on the influence

Table 4. Significant Mean Difference between the Parents' Roles

Z-Test: Two-Sample for Means		
	Sample 1	Sample 2
	Parents from A National High School	Parents from B Night High School
Mean	2.28	2.32
Known Variance	0.013143	0.010286
Observations	15	15
Hypothesized Mean Difference	0	
Level of Significance	0.05	
Z	-1.0121124	
P Value for Two-Tail	0.311484315	
z Critical two-tail		
Lower Critical Value	-1.959963985	
Upper Critical Value	1.959963985	

Table 5. Significant Mean Difference between the Parents' Capability as Tutors

Z-Test: Two-Sample for Means		
	Sample 1	Sample 2
	Parents from A National High School	Parents from B Night High School
Mean	3.190	3.192
Known Variance	0.013143	0.019373
Observations	10	10
Hypothesized Mean Difference	0	
Level of Significance	0.05	
Z	-0.03694	
P Value for Two-Tail	0.970529	
z Critical two-tail		
Lower Critical Value	-1.959963985	
Upper Critical Value	1.959963985	

Table 6. Relationship Between Parents' Educational Attainment and Capability as Tutors

Result	Interpretation
r 0.08	Weak Correlation

of the new educational setup in time of the pandemic on parents' relationship with their children, their struggles, and their views about the other existing learning modalities adopted by the public or private schools.

Similar to other studies, this study has also its limitations. The respondents of the study may cover more parents from public elementary and secondary schools. A qualitative research design could have also been employed to explore the contextual experiences of parents in modular-distance learning. Finally, teachers may be considered as another variable to consider when exploring the roles and capability of parents as tutors in modular-distance learning.

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